

DRAFT
PLAN RECOMMENDATIONS
FOR PUBLIC REVIEW AND COMMENT

1980 Bay Area Water Quality Management Plan

**SAN FRANCISCO
BAY AREA
ENVIRONMENTAL
MANAGEMENT
PLAN**



May 1980

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This plan was prepared by the Association of Bay Area Governments with a grant and other assistance from the Environmental Protection Agency, in cooperation with the San Francisco Bay Regional Water Quality Control Board; the Council of Bay Area Resource Conservation Districts; and the Counties of the Bay Area.

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I. INTRODUCTION

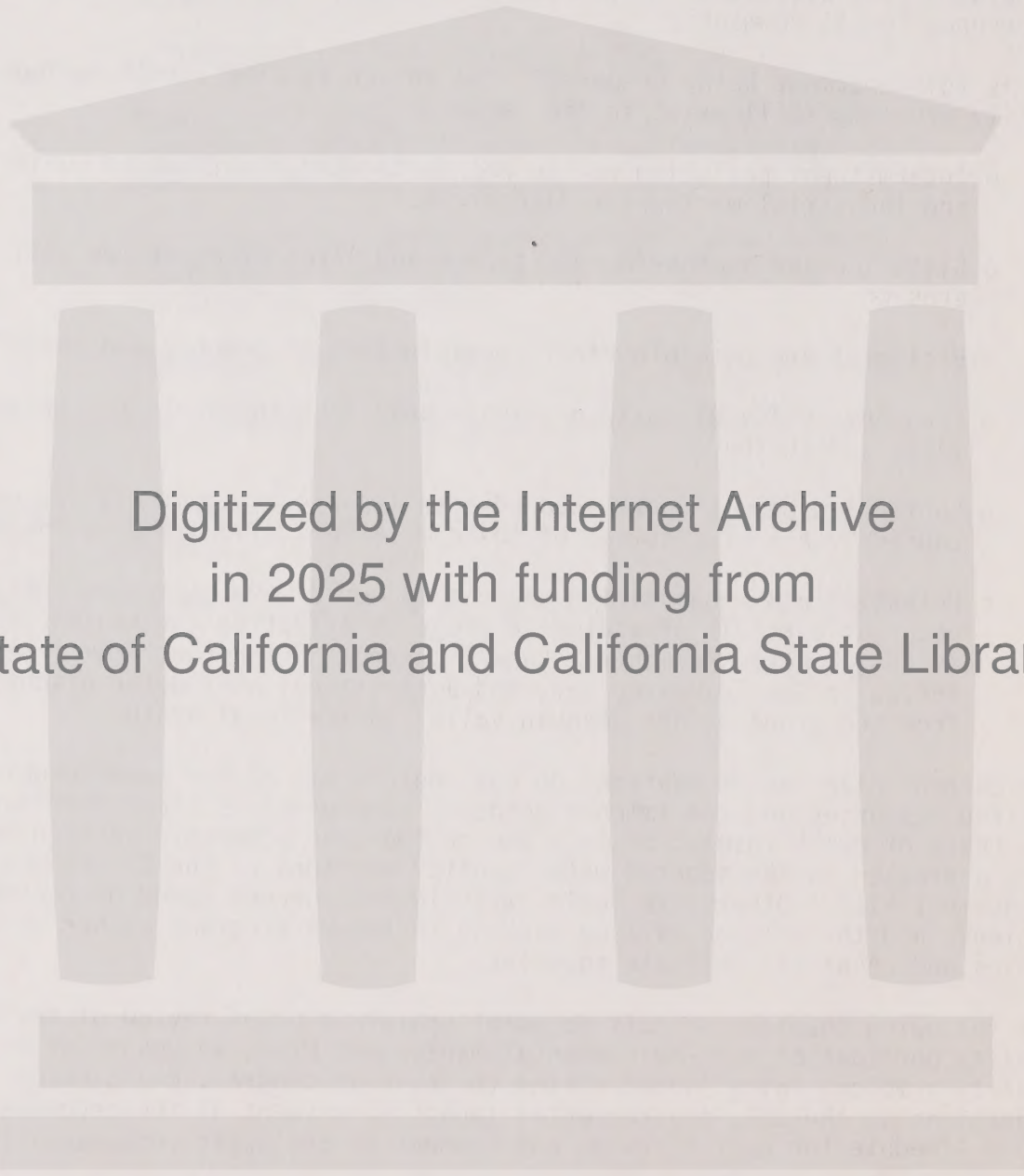
This document presents the results of ABAG's 1979-80 water quality planning program. These study results and recommended additions to the San Francisco Bay Area Environmental Management Plan are being issued in draft form to solicit public review and suggestions for improvements. The ABAG staff encourages full discussion of the recommendations and will make every effort to respond to all comments.

Why is this document being prepared? The answer is simply that serious water quality problems still exist in the region:

- o Intermittent pollution due to poorly treated or dispersed municipal and industrial wastewater discharges.
- o Siltation and smothering of streams and lakes by excessive soil erosion.
- o Bacterial and possible viral contamination of beaches and shellfish.
- o Frequent spills of toxic or highly polluting chemicals to streams, lakes and the Bay.
- o Subtle and poorly understood adverse impacts on aquatic life, probably caused by any of a number of toxic materials discharged to the Bay.
- o Potential and unquantified changes in our Bay-Delta system that may occur as a result of statewide projects affecting the region, such as the proposed Peripheral Canal, upstream diversions from freshwater inflow to San Francisco Bay, and agricultural wastewater discharges from the proposed San Joaquin Valley agricultural drain.

The current plan recommendations do not address all of the known problems. Limited resources and the immense scope of some problems place them outside the reach of quick resolution in a one or two-year program. Certain problems were addressed in the adopted water quality portions of the Environmental Management Plan. Others are dealt with in the current round of recommendations, and the balance will be tackled in future programs either by ABAG, cities and counties, or State agencies.

The following chapters of this document contain a brief review of the water quality portions of the Environmental Management Plan, an update of water quality problems investigated during the current program, draft recommendations to the EMP, environmental impact assessment of the recommendations, and a schedule for public review and comment of the draft recommendations.



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II. THE ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management Plan (EMP) for the San Francisco Bay Area was adopted by the General Assembly of the Association of Bay Area Governments (ABAG) in June 1978. The EMP was prepared with assistance from the San Francisco Bay Regional Water Quality Control Board (RWQCB), the Bay Area Air Quality Management District, the Metropolitan Transportation Commission, and the region's nine counties. Preparation of the initial plan was guided by a 46-member Environmental Management Task Force (EMTF), a policy advisory body to the ABAG Regional Planning Committee (RPC) and Executive Board. The plan presented a series of actions that showed how the region could solve air, water and solid waste problems in the Bay Area, and meet key Federal and State standards.

THE WATER QUALITY MANAGEMENT PLAN

The water quality portions of the EMP are collectively referred to as the Water Quality Management Plan (WQMP) for the San Francisco Bay Area. They were prepared to meet the requirements of the Federal Water Pollution Control Act Amendments of 1972 and 1977.

The WQMP was conditionally certified by the State Water Resources Control Board acting for the Governor in September 1978, and conditionally approved by the Environmental Protection Agency (EPA) in February 1979. Although ABAG has submitted documentation to the State and EPA demonstrating fulfillment of the imposed conditions, the two agencies have not acted to acknowledge completion of the WQMP.

Federal regulations require that a significant number of water quality management agencies listed in the EMP indicate their willingness to implement those actions for which they are identified as implementing agencies. To date, ABAG has received such commitments from:

- o 8 of 9 Bay Area counties, excluding Napa,
- o 73 of the 84 cities within the water quality planning boundary,
- o special district implementing agencies, and
- o state-level implementing agencies.

The WQMP addresses water quality problems in the Bay Area in four major areas of concern. These are:

- 1) actions dealing with receiving waters and health of the ecosystem;
- 2) actions directed at municipal and industrial point sources of wastewater discharge;
- 3) surface runoff pollution control activities; and
- 4) miscellaneous pollution sources such as septic tanks, vessel wastes and chemical spills.

The WQMP identifies specific policies and actions which would greatly alleviate, if not eliminate, water pollutants and pollution-related problems in the Bay Area. Table II-1 lists the policies and actions in the currently approved WQMP. This table is provided for quick reference to the existing WQMP, to help place the proposed new actions in context. New actions, presented in Section IV, can only be taken if formally adopted by ABAG, the State and EPA.

TABLE II-1: CURRENT ACTIONS IN THE SAN FRANCISCO BAY AREA

WATER QUALITY MANAGEMENT PLAN

Policy 1: Improve Understanding of Bay-Delta Estuarine System and the Fate and Effects of Pollutants Entering It

- Action 1.1 - Establish San Francisco Bay Delta Research Advisory Council
- Action 1.2 - Conduct receiving water monitoring program for San Francisco Bay
- Action 1.3 - Evaluate and establish research goals
- Action 1.4 - Disseminate through the media and other sources an annual "State of the Waters" report
- Action 1.5 - Integrate water quality data with existing regionwide data management system

Policy 2: Establish Continuing Planning Process for Water Quality Management

Policy 3: Facilitate the Re-Establishment of Recreational and Commercial Shellfish Harvesting in the Bay as Allowed by Water Quality

- Action 3.1 - Conduct a preliminary survey and assessment of shellfish beds in the Bay
- Action 3.2 - Establish a systematic monitoring and sampling program of selected shellfish beds
- Action 3.3 - Establish an agreement between State Dept. of Health and Dept. of Fish and Game for patrolling shellfish beds
- Action 3.4 - Establish criteria for commercial shellfishing in the Bay and evaluate methods of harvesting

Policy 4: Ensure that Water Pollution Facilities or Measures Effectively Protect Water Quality

- Action 4.1 - Issue and update monitoring requirements appropriate to permit conditions and in conformance with regionwide monitoring network
- Action 4.2 - Monitor performance of municipal and industrial wastewater systems in accordance with monitoring requirements
- Action 4.3 - Publish annual report summarizing results of dischargers self-monitoring programs

Policy 5: Provide Facilities Needed for Municipal Sewerage Service and Water Quality Protection

- Action 5.1 - Expand capacity of existing facilities and provide new facilities for municipal sewage collection, treatment and disposal according to the 20-year project list. Level of treatment to depend on State and Federal regulations
- Action 5.2 - Issue and update limits for municipal discharges in conformance with EMP

Policy 6: Encourage Consolidation of Treatment Facilities and Discharge of Wastewater to Well-Mixed Receiving Waters Where Economically Justified and Environmentally Feasible

TABLE II-1 (Cont'd)

Action 6.1 - Review all proposed facilities for consistency with above policy

Policy 7: Accelerate Programs Toward Reclamation and Reuse of Wastewaters

Policy 8: Establish a Program of Surface Runoff Controls that Emphasize Low Cost Measures to Reduce the Pollutant Load From This Source

Action 8.1 - Implement county surface runoff plans (Appendix C volume), after adoption by the cities and county within each county

Action 8.2 - Conduct regional aspects of surface runoff programs

Policy 9: Provide Facilities Needed for Industrial Wastewater Treatment and Disposal and Water Quality Protection

Action 9.1 - Expand existing and provide new facilities for treatment and disposal of industrial wastes discharged directly to receiving waters

Action 9.2 - Issue and update permits for direct industrial discharges

Action 9.3 - Expand existing and provide new facilities for pre-treatment of industrial wastewaters discharged to municipal sewer systems

Action 9.4 - Issue and update permits for industrial discharges to municipal sewer systems

Policy 10: Reduce Sewage Pollution From Vessels, Including Houseboats, in the Bay-Delta System

Action 10.1 - Improve monitoring and documentation of vessel waste pollution

Action 10.2 - Conduct public hearing(s) and establish discharge prohibition as appropriate

Action 10.3 - Inform boating public of marine sanitation device programs

Action 10.4 - All marinas and harbors to provide vessel holding tank pump-out facilities

Action 10.5 - All marinas and harbors to provide on-shore toilet facilities

Action 10.6 - Revise DNOD's loans and grants programs to fund pump-out facilities and on-shore toilets

Policy 11: Improve Wastewater Disposal Practices in Unsewered Areas

Action 11.1 - Establish minimum regionwide standards for on-site disposal systems

Action 11.2 - Inspect periodically new on-site wastewater disposal systems, including septic tanks, and establish procedures to ensure proper maintenance

Action 11.3 - Establish procedure for inspection and maintenance of existing on-site systems where appropriate

Action 11.4 - Where on-site systems are inappropriate--install sewerage system

Action 11.5 - Promote research of on-site disposal systems

Action 11.6 - Revise State grant programs to ensure consideration for funding on-site systems

Policy 12: Monitor Effectiveness of Existing Arrangements for Preventing and Dealing with Oil and Chemical Spills in Bay Area

- Action 12.1 - Monitor the implementation of new hazardous substances regulation
- Action 12.2 - Establish a task force to investigate non-petroleum hazardous chemical spill problems in offshore waters, bays and estuaries of California, and make recommendations
- Action 12.3 - Investigate cleanup and preventive measures for inland spills of all potentially hazardous or toxic chemicals in the Bay Area and make recommendations for improvement
- Action 12.4 - Develop local roadway and railbed spill containment and cleanup capabilities
- Action 12.5 - Reevaluate need to upgrade vessel traffic system in Carquinez Strait and N. San Pablo Bay
- Action 12.6 - Unless preempted by Federal law, enact State Legislation to increase liability of spillers and compensate for oil spill damage
- Action 12.7 - Promulgate final Federal regulations proposing improvements in requirements for navigational aids and tanker construction

CURRENT ACTION IN THE SAN FRANCISCO BAY AREA
WATER SUPPLY MANAGEMENT PLAN RECOMMENDATIONS

Policy 1: Provide a Safe and Reliable Water Supply to All Citizens at a Minimum Monetary and Environmental Cost

- Action 1.1 - Establish water resource management coordinating committee (WMCC)

Policy 3: Encourage Safe and Cost-Effective Wastewater Reclamation

- Action 3.1 - Conduct regional reclamation study
- Action 3.2 - Construct cost-effective wastewater reclamation projects
- Action 3.3 - Expedite studies and standard setting for use of reclaimed wastewater for recharge and other purposes

CURRENT ACTION IN THE SAN FRANCISCO BAY AREA
SOLID WASTE MANAGEMENT PLAN

Policy 4: All Solid Waste Disposal Sites Must be Situated, Designed, Operated, and Eventually Closed Down in a Proper Manner to Provide Protection to the Surface and Ground Water Quality and the Natural Environment As Well As Protection of Public Health and Safety

- Action 4.1 - Accelerate the adoption and updating of the Waste Discharge Requirements

Policy 11: Adequate Planning for Hazardous Waste Management Requires Accurate Data

TABLE II-1 (Cont'd)

Action 11.3 - Determine whether there is a need for additional Class I site capacity

Policy 12: Hazardous Industrial Waste Reduction, Source Separation, and Recovery Should Be Promoted in the Interest of Limiting Land Disposal

Action 12.1 - Encourage hazardous waste reduction

Action 12.2 - Encourage hazardous waste source separation

Action 12.4 - Investigate the consolidation of hazardous wastes for processing

Policy 13: Regulations Should Ensure Safe and Proper Handling of Hazardous Wastes

Action 13.4 - Improve procedures for preventing and handling spills of hazardous wastes

Action 13.6 - Establish and enforce regulations for on-site disposal of hazardous wastes

Policy 15: The Regional Wastewater Solids Study Recommendations, When Completed, Should be Integrated into Local and Regional Solid Waste Management Plans

Action 15.1 - Complete the regional wastewater solids management plan

Action 15.2 - Integrate the Wastewater Solids Study recommendation into regional and local solid waste management plans

Policy 16: Facilities Planning, Design, and Construction for Wastewater Solids Management Should Be Accomplished by Local Wastewater Management Agencies in Conformance With the County Solid Waste Management Plans, the Environmental Management Plan (208 Plan), and Federal and State Requirements

Action 16.1 - Develop facilities plans (Step 1)

Action 16.2 - Review proposed facilities plans

Action 16.3 - Design wastewater solids management facilities (Step 2)

Action 16.4 - Construct wastewater solids management facilities (Step 3)

PLAN IMPLEMENTATION

Policy 2: Federal and State Governments Should Make Legislative and Administrative Changes to Carry Out Environmental Management Plan Recommendations, As Necessary

Action 2.1 - Provide additional funding for the California Dept. of Health to establish and carry out regulations for commercial and recreational shellfish harvesting in San Francisco Bay

Action 2.2 - Enact legislation to require existing marinas and harbors to provide on-shore toilet facilities

Action 2.3 - Unless preempted by Federal law, enact legislation on liability requirements and compensation to minimize water pollution from oil spills

Action 2.12 - Provide necessary funding for local government agencies to carry out regulations and programs outlined in this Plan.

TABLE II-1 (Cont'd)

Policy 3: Plan Implementation Should Be Ensured Through the Timely and
Appropriate Completion of Management Agreements as Required By
Federal Regulations

Action 3.1 - Obtain management agreements to implement the policies
and actions of appropriate portions of the Environmental
Management Plan

III. WATER QUALITY PROBLEMS AND HIGHLIGHTS OF RECOMMENDATIONS

BACKGROUND

Previous studies have identified various water quality problems in the Bay Area. These problems, found in local streams, lakes, reservoirs and the Bay itself, encompass a wide range of pollutants produced by our society. The most apparent have been:

- o Sedimentation: Soil erosion into drainage courses had led to turbidity and deposition of sediments, clogging storm sewers, stream channels, lakes and reservoirs.
- o Bacterial and viral contamination: High bacterial counts, indicating fecal contamination, limit water contact recreation opportunities and severely impair shellfish harvesting.
- o Heavy metals: Heavy (toxic) metals have been found in Bay waters, sediments and shellfish.
- o Pesticides: Pesticides enter the Bay Area from the Central Valley and local runoff; a documented impact of this has been the thinning of eggshells among wild birds.
- o Oil and grease: Petroleum hydrocarbons, many of which are toxic or carcinogenic, have been reported in the food chain of the Bay Area ecosystem and found in all urban runoff.
- o Nutrients: Nutrients cause algal blooms with clogging of waters, reduction of oxygen, and foul odors; these problems have been most pronounced in the Bay and local lakes.
- o Litter and debris: Littering of Bay Area waters reduces aesthetic enjoyment and makes recreational uses undesirable.
- o Oxygen depletion: Caused by the decomposition of organic wastes, this historical problem occurs when raw or primary treated wastewaters are discharged to the Bay. With most treatment plants producing a higher quality effluent this is less of a problem today in the Bay. (The fragile nature of this protection is evidenced by the recent failure at the San Jose wastewater treatment facility which caused a severe oxygen depletion problem in the South Bay.)

Figure III-1 shows the relative contributions of various sources to the pollutants entering Bay waters. Except for rainfall or aerial fallout, most sources do not generate pollutants in proportion to their flow. Surface runoff is relatively high in oxygen consuming matter (BOD₅), suspended solids, and heavy metals. Municipal and industrial point sources disproportionately contribute phosphorus, nitrogen, BOD₅ and heavy metals.

The fate of pollutants entering the receiving waters varies widely. Delta outflow, with its large emissions of most pollutants, generally discharges directly through the Bay into the ocean. Surface runoff directly impacts inland streams, lakes and reservoirs, which never experience Delta outflow. Finally, most point sources discharge along the periphery of the Bay Area counties and, with some exceptions, do not have significant impact on inland waters. Table III-1 presents the calculated and reported pollutant mass emission rates from these sources during 1978.

Figure III-1

Freshwater and Pollutant Contributions to San Francisco Bay Area Surface Waters in 1978

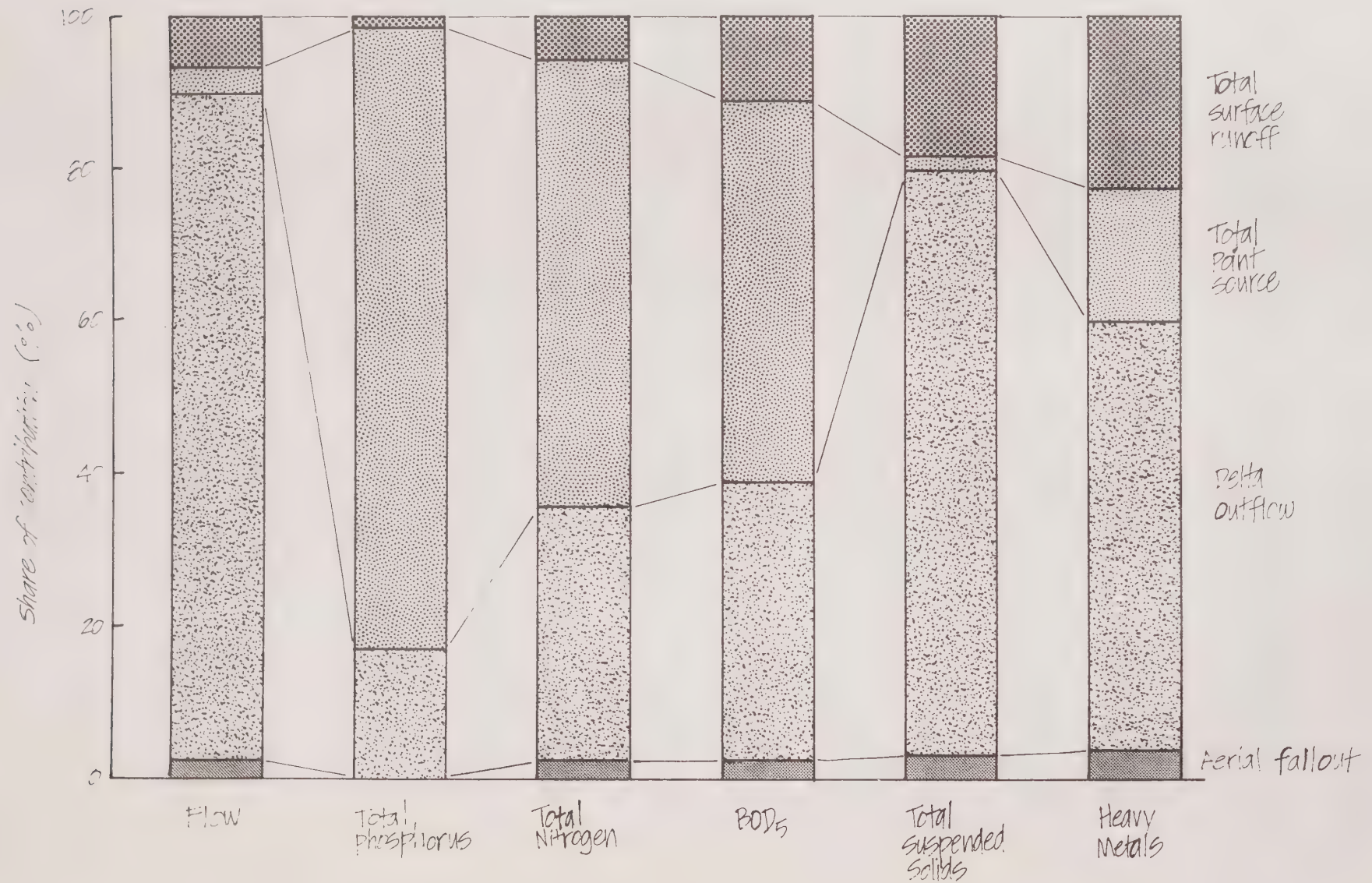


TABLE III-1. ANNUAL FRESHWATER AND POLLUTANTS ENTERING THE BAY IN 1978

Source Parameter ^a	Municipal	Industrial	Total Point Source	Street Surface	Open Area	Other	Total Surface Runoff	Delta	Aerial Fallout	Total Bay Input
Flow	726 (192)	70 (19)	796 (210)	163 (43)	1109 (293)	167 (44)	1439 (380)	18777 (4960)	-757 (-200)	20255 (5350)
BOD ₅	52 (115)	3.0 (7)	55 (122)	3.2 (7)	3.2 (7)	3.9 (8.5)	10 (23)	24 (52)	2.3 (5)	91 (202)
Total Suspended Solids	36 (80)	8.7 (19)	45 (100)	27 (59)	417 (921)	27 (60)	471 (1040)	1972 (4350)	79 (175)	2568 (5665)
Total Nitrogen	22 (49)	0.6 (1.4)	23 (50)	0.5 (1)	0.9 (2)	0.9 (2)	2.3 (5)	13 (28)	0.9 (2)	39 (85)
Total Phosphorus	11 (23)	0.04 (0.1)	11 (23)	0.05 (0.1)	0.1 (0.2)	0.1 (0.2)	0.2 (0.5)	2.3 (5)	0 (0)	13 (29)
Heavy Metals ^b	0.4 (0.8)	0 (0)	0.4 (0.8)	0.6 (1.3)	0.7 (1.5)	0.5 (1)	1.7 (3.8)	2.9 (6.5)	0.2 (0.5)	5.3 (12)

^a Flow in millions of cubic meters per year (billions of gallons per year)

other constituents are in millions of kilograms per year (millions of pounds per year)

^b Total equivalent heavy metals expressed as chronic toxicity equivalent of chromium.

CURRENT STUDIES

The 1979-80 water quality planning program has emphasized only a number of the pollution sources affecting Bay Area waters. This concentrated effort was intended to more rapidly develop solutions to certain problems and also recognized that many other problems were being addressed through implementation of actions in the EMP. Current studies have focused on:

- o Extra regional proposals affecting Bay Area waters
- o Municipal wastewater treatment needs
- o Surface runoff pollution
- o Chemical spills

These problem areas and the highlights of proposed actions for their resolution are discussed in the balance of this chapter.

PROJECTS AFFECTING BAY-DELTA WATER QUALITY

Water supply, agricultural use and commerce are the three main areas with proposed projects that could affect Bay-Delta water quality. While these projects provide significant economic and social benefits, they often raise environmental concerns over potential salinity changes in the Bay-Delta system and its repercussions on the aquatic environment, fisheries, and recreation.

The Peripheral Canal Project contemplates the bypass of major portions of Sacramento River flows around the Delta directly in to the aqueducts and canals feeding the San Joaquin Valley and Southern California. Some canal water would be released along the eastern Delta periphery to redistribute a portion of the Delta freshwater inflow. Serious concerns have been raised by Bay Area Cities and counties over the project, which provides immense benefits to the San Joaquin Valley and Southern California at the expense of the natural Bay-Delta system. Concerns have been raised over the potential for extensive saltwater intrusion into the Delta that could damage farming, drinking water quality, and the integrity of the estuarine environment.

The San Joaquin Valley Interagency Drainage Program proposes the extension of the San Luis Drain which collects brackish groundwater from subsurface agricultural drainage systems. Lack of disposal capability now constrains installation of the necessary subsurface drainage systems and could lead to a loss in agricultural productivity. The drainage canal would follow the San Joaquin Valley trough and discharge to Suisun Bay near Chipps Island. Drainage marshes and holding ponds would provide 51,000 acres of wildlife habitat. Bay Area cities and counties have expressed concern over becoming the recipients of brackish nutrient-laden waters with trace amounts of metals and pesticide contaminants. Questions have been raised about whether the drain waters can become sufficiently diluted to reduce potential salinity increases, algal blooms and effects of drinking water quality.

The Regional Reclamation Study for the San Francisco Bay is exploring alternatives for reuse/disposal of reclaimed wastewater. One of the prominent alternatives involves conveying the reclaimed water to the Delta as a salt barrier. An analysis of the full impacts to the receiving water has not been completed.

Dredging projects are currently proposed for the Baldwin and Sacramento Ship channels. Increased channel depths would accommodate larger ships and greater transport volumes of bulk products and maintain future economic growth in the Sacramento and Stockton areas. The increased channel depths have raised concerns over the increased potential for saltwater intrusion and problems with disposal of dredge spoils. One possible mitigation measure is the construction of a 15-foot rock sill at the bottom of the Carquinez Strait to deter the upstream movement of saltwater along the bottom of Suisun Bay and the Sacramento River. The effectiveness of an underwater sill and its potential ecological impacts are also of concern to the Bay Area.

RECOMMENDATION TO ESTABLISH POLICY POSITIONS

Under this new action, ABAG would evaluate projects and programs that could affect water quality and ecosystems in the Bay-Delta estuarine system. Types of projects that would be evaluated range from the export of fresh-water from the Delta system, drainage and discharge of salt-laden waters into the Delta, injection of reclaimed wastewater into the Delta water table to repel salinity and channel dredging that could increase upstream salt water intrusion and others. Where significant impacts could occur that would affect the Bay region, ABAG would prepare a position in support of or in opposition to particular projects and provide testimony at hearings and legislative committees.

POINT SOURCE NEEDS AND PLANNING PROBLEMS

Municipal and industrial wastewater treatment facilities represent one of the largest capital expenditure programs in the country and certainly the largest in water quality protection. Construction expenditures in the Bay Area have been running over \$25 million annually. The municipal facilities constructed as part of the Section 201 Grant Program have produced the greatest improvements in Bay water quality, substantially increasing dissolved oxygen levels and reducing bacterial pollution.

The mechanism by which grant monies from the Federal government are allocated for the construction of wastewater facilities is by the 20-year need list, prepared as part of the Water Quality Management Plan. Such a list must be consistent with regional growth projections and the policies of the approved WQMP. Projects on the list, prepared by ABAG, are eligible for funding and projects not on the list are ineligible. The State, through the RWQCB has been preparing a 5-year funding priority list in its role as the administrator of grant monies on behalf of EPA. A tremendous effort has been expended annually on the part of both agencies to review each other's list and reconcile list differences. Wastewater dischargers have had the additional inconvenience of providing planning information and updates to both agencies. In short, the current system, while required by law and regulation, has been fraught with some confusion and definite inefficiency.

An additional element of wastewater facilities planning that has been largely overlooked affects both wastewater facilities and surface runoff facilities. The element deals with recreational opportunities and its analysis is mandated by the Clean Water Act. Frequently, wastewater facilities have

been located on land with prime recreation potential, yet have not accommodated that potential in their design. Since the single largest cost for recreation facilities is land acquisition, it is essential that all dual use capabilities of pollution control facilities be thoroughly explored.

RECOMMENDATIONS FOR POINT SOURCE PLANNING

The draft recommendations to Policy 5 would simplify the point source control planning process and could improve local government services to citizens. In the area of point source control planning, it is recommended that the RWQCB prepare a single, 20-year needs and funding priority list. ABAG would review this list for consistency with the WQMP and regional growth projections. Subsequently the list could be adopted into the WQMP. Use of this process would greatly simplify the respective agency roles, reduce duplication and still satisfy requirements of the Clean Water Act.

Additional recommendations to Policy 5 would add an analysis of potential recreational benefits to be achieved from pollution control facility construction or expansion. Opportunities would arise for bicycle paths, playgrounds, shoreline access or even uses of reclaimed water. The proposed actions would enable local governments to expand recreational facilities while still achieving the primary benefits of water pollution control.

SURFACE RUNOFF PROBLEMS

Although erosion and sedimentation is the principal surface runoff problem in the Bay Area, other non-point source problems also exist whose impacts can be quite serious. Urban runoff is generally low in sediments but contributes significant amounts of oils, grease, heavy metals, nutrients, litter and bacteria. Rural drainage can add nutrients, pesticides, herbicides and salts in addition to sediments.

The problems vary significantly from area to area and solutions need to be tailored to specific situations. The EMP contains county plans developed to respond to the unique conditions of each county. To date, the effective widespread implementation has been hampered by lack of understanding water pollution problem impacts. Also, little information has been available on costs and benefits of control measures. These impediments are being partially addressed by demonstration projects of the National Urban Runoff Program. Such a project has been funded in the Castro Valley of Alameda County for an investigation of different modes of street sweeping to benefit water quality.

SURFACE RUNOFF RECOMMENDATIONS

During preparation of the Manual of Specifications for Surface Runoff Control Measures a number of public works practices were investigated for their potential to reduce water pollution. These practices are normally conducted by city or county public works departments for reasons such as aesthetics, flood control or public health. They offer local governments a means for reducing urban runoff pollution through modification of practices with little or no increase in expenditures.

As an example, substantial improvements in street sweeping benefits can be obtained by concentrating on winter sweeping programs. By sweeping more in the winter, when rains could otherwise wash street solids into receiving waters, and less in summer, when washoff occurs infrequently, more solids can be saved from washoff at substantially less cost than typical programs. Other public works practices beneficial to water quality include litter collection, catch basins cleaning and leaf collection.

EROSION RELATED PROBLEMS

Erosion of soil and sedimentation into surface waters is the single most serious surface runoff problem in the Bay Area. Erosion leads to: turbidity of water and deposition of sediments; clogged storm sewers and stream channels; reduced lake and reservoir capacities; significant portions of nutrient loadings to Bay Area waters. It also may result in severely impacted aquatic life.

Although erosion and sedimentation are natural processes, they are greatly accelerated by man's activities such as construction, mining, agricultural practices, recreation and accidental wildfires. The nine Bay Area counties produce approximately 8.3 million cubic yards per year of water-borne sediment. It is estimated that 2.7 million cubic yards are deposited in lakes and reservoirs throughout the area, 3.1 million cubic yards are deposited in streams and channels, and 2.5 million cubic yards ultimately wash into the Bay. This is in addition to the 8 million cubic yards of sediment carried in by the Sacramento and San Joaquin Rivers.

Depending upon location, uncontrolled construction activities increase erosion from 10 to 2000 times natural processes. Increases of 15 to 20 times have commonly been reported in the Bay Area.

Erosion and sedimentation is one of the few surface runoff problems which have partially quantifiable economic impacts. Within every county, hundreds of thousands to millions of dollars are being spent annually to remove locally originated sediment from streams, channels and reservoirs. Over \$40 million could be spent locally to remove this sediment, in addition to clearing the Bay of imported sediment. Costs are about one third of that because many larger reservoirs are being allowed to fill up where dredging is prohibitive.

The less quantifiable impacts of erosion and sedimentation may be just as important. Erosion removes nutrients with the soil for deposition in our waters. Erosion causes the loss of precious topsoil with an estimated worth over \$60 million per year in the Bay Area. Sediment in water supply reservoirs decreases water quality, and increases treatment costs of chemicals, energy and sludge disposal. Streams with heavy sediment loads lose flood carrying capacity and can lead to property damage in adjacent areas.

Excessive deposition of sediments in streams and lakes will smother the bottom fauna and literally "pave" a stream bottom into a flat sterile environment. Erosion of streambanks and adjacent watershed areas can destroy vegetation that is important in moderating climatic extremes as well as providing aquatic and wildlife habitat. Turbidity from high streams sediment loads can reduce in-stream photosynthesis leading to reduced food supply and habitat. Excessive nutrients from surface runoff can trigger

major algal blooms that choke waterways, deplete oxygen and lead to fish kills.

EROSION RELATED RECOMMENDATIONS

The recommended plan actions under Policy 8 deal directly with erosion in urban and rural areas. A major action is to have every city and county improve grading ordinances to require that new construction include basic, relatively inexpensive but very effective practices to reduce erosion from disturbed soil. Owner built homes in non-critical areas could even be exempt from adding control measures. If fully implemented, this action could lower Bay Area sediment yield by up to one million cubic yards annually. The modest one time construction cost of the measures would be more than offset by just the saved dredging costs of the retained sediment and the ecological impacts would also be substantially prevented.

In order to assist local governments and builders in the implementation of control measures, ABAG, working with consultants and interested agencies, has prepared a manual containing specifications for control measures, model ordinances, and planning and enforcement guides. This manual, to be revised as new technical information is developed, is proposed as an official guide for measures developed specifically for Bay Area conditions.

Erosion is certainly a problem also of rural areas. The Bay Area Council of Resource Conservation Districts has prepared a list of critical watersheds in the Bay Area counties for adoption into the Environmental Management Plan. These watersheds are critical for erosion and water quality by virtue of their topography, soils, land use activities or need for controls. It is intended that this list be used by local governments **in their** planning activities and for eligibility in Federal or State grant programs.

In keeping with this concept, Alameda, Marin, Santa Clara and San Mateo counties have been preparing protection plans for five critical watersheds that have demonstrated water quality protection needs. These plans include a number of control measures ranging from physical devices added during construction activities to a unique transfer of development rights out of a critical area.

CHEMICAL SPILLS

Oil and chemical spills, due to their unexpected and intermittent nature, pose unique water quality and management problems. Types of water quality problems that can be associated with spills include toxicants, pesticides, oil and grease, nutrient enrichment, organic wastes, low dissolved oxygen, litter and debris. Effects vary greatly depending on the substance and amount spilled. A large volume of a typically harmless substance such as milk can have a harmful effect equal to or greater than that of a small amount of a toxic material. The potentially severe impacts of spills upon the environment include fish kills, destruction of aquatic habitat and zooplankton, degradation of shore communities including commercial oysters and clam beds, fouling of beaches and reduction of aesthetic qualities, and harm to human health. Aquatic birds and mammals can also be adversely affected. Fish flesh may become tainted and fish production lowered. Concern is also rising as to potential chronic impacts from the cumulative occurrence of spills.

Chemical spills are a unique water pollution control problem. Here today-- gone tomorrow aptly describes the principal reason why chemical spills are still troublesome. Accidental events, with no predictable frequency or location and with transitory but highly toxic effects are difficult to regulate or manage. The Environmental Management Plan recognized this problem in Policy 12 of the WQMP. Various actions were spelled out for improvement in spill management. Subsequent analysis indicated these were still insufficient.

A recent survey was conducted of spill reports for the Bay Area. The results of that survey are presented in Table III-2. The numbers themselves, ranging from 127 to 360 spills per year are disturbing and probably represent only a portion of the true number of spill events. The immediate problems the table illustrates are due to the variations in numbers.

Each of the agencies listed in Table III-2 has a separate jurisdiction and concern, with occasional area of overlap. Each agency has an operational definition of hazardous and non-hazardous chemicals, and each has a distinct philosophy on which areas of the environment are to receive prime protection. Into this arena must be added local fire districts, often first on the scene, with locally developed spill management plans. The result is an inconsistent approach to spill management that does not maximize the resources available to the Bay Area and often uses surface waters as convenient ultimate disposal sites.

If the situation with hazardous chemicals appears somewhat uncoordinated, the handling of non-hazardous chemical spills is far worse. Table III-3 indicates that most agencies contacted did not have plans or policies for containment of non-hazardous chemicals. Yet these "safe" chemicals have a greater potential for water quality damage than do hazardous materials. For example, large volumes of milk or wine have poisoned fish, depleted oxygen levels and added nutrients to receiving waters. Non-hazardous but water polluting chemicals make up 95 percent of the chemical shipments on our roadways.

SPILL MANAGEMENT RECOMMENDATIONS

The draft plan recommendations for Policy 12 call for all agencies dealing with spills handling to draft a regional spill response plan for the Bay Area. The agencies would include representatives of fire districts, emergency services, public works, State and Federal agencies. The regional response plan would identify Bay Area resources, resolve inconsistencies among plans and policies, assess equipment and manpower needs, and serve as a mechanism to obtain needed improvements.

The draft plan recommendations also call for spill response agencies to practice containment of all spills, for subsequent pickup and disposal in a safe site. Partially in recognition of the polluting potential of all chemicals and the often argued distinctions among hazardous and non-hazardous chemicals, Caltrans has already adopted a policy of containment for all spills.

TABLE III-2 OIL AND CHEMICAL SPILLS REPORTED IN THE BAY AREA ANNUALLY

Reporting Agency	Average Number of Spills/Year ^a	percent			
		Oil	Hazardous Materials	Non-hazardous Materials	Unknown Substance
Coast Guard (1)	360	98	2 ^b	--	--
Environmental Protection Agency (2)	200	60	24 ^c	5	11
State Department of Fish and Game (3)	127	58	21 ^d	9	12
Caltrans (5)	160	4	17	78	1
State Office of Emergency Services (7)	170	nda	nda	nda	nda

^a Due to overlapping jurisdictions, spill counts from each agency should not be added together to give a total annual count for the Bay Area.

^b Hazardous materials, defined by Title 49 CFR, Part 172, list of 1260 materials.

^c Hazardous substances, defined by Title 40 CFR, Part 117, list of 299 materials.

^d In practice, DFG considers any substance potentially hazardous to waterways. However, the California Administrative Code, Title 22, Division 4, Chapter 30, Article 8, identifies 791 materials as hazardous to people and wildlife.

TABLE III-3 SURVEY OF LOCAL POLICY FOR CONTAINMENT OF
NON-HAZARDOUS MATERIALS SPILLS

<u>Agency</u>	<u>Spill plan/policy for containment of non-hazardous materials</u>
ALAMEDA	
County Office of Emergency Services (COES)	Yes
Berkeley Fire Department	No
Oakland Fire Department	No
Livermore Emergency Services	No
CONTRA COSTA	
COES	Yes
Contra Costa County Fire Protection District	No
Richmond Fire Department	Yes
MARIN	
COES	No
Marin County Fire Department	No
Tiburon Fire Department	No
NAPA	
COES	No
Napa Fire Department	No
SAN FRANCISCO	
COES	No
San Francisco Fire Department	No
SAN MATEO	
COES	No
Redwood City Fire Department	No
SANTA CLARA	
COES	No
San Jose Fire Department	No
SOLANO	
COES	No
Vallejo Fire Department	No
SONOMA	
COES	No
Santa Rosa Fire Department	Yes
CALTRANS	Yes

IV. DRAFT RECOMMENDATIONS FOR THE ENVIRONMENTAL MANAGEMENT PLAN

Proposed new actions to be added to those currently in the adopted WQMP are as follows:

WATER QUALITY MANAGEMENT ELEMENT

Policy 1. Improve understanding of the Bay-Delta estuarine system and the fate and effects of pollutants entering it.

Action 1.6 Support programs and proposals to protect water quality of the San Francisco Bay-Delta estuarine system.

MUNICIPAL FACILITIES ELEMENT

Policy 5. Provide facilities needed for municipal sewerage service and water quality protection.

Action 5.3 Consolidate preparation of 20-year municipal wastewater facilities project list.

Action 5.4 Evaluate potential recreational facilities and benefits during water quality protection facility planning.

Action 5.5 Incorporate recreational facilities into water quality protection projects where economically justified.

Action 5.6 Consider recreational facilities as mitigation measures offsetting possible negative impacts of water quality protection projects.

SURFACE RUNOFF ELEMENT

Policy 8. Establish a program of surface runoff controls that emphasize low cost measures to reduce the pollutant load from this source.

Action 8.3 Adopt regionally consistent definition of Best Management Practices and revise as new information warrants.

Action 8.4 Adopt and implement effective ordinances and programs for the control of construction-related erosion.

Action 8.5 Implement other Best Management Practices as needed to protect beneficial uses of receiving waters.

Action 8.6 Identify critical watershed problem areas.

Action 8.7 Adopt watershed protection plans for critical areas.

MISCELLANEOUS SOURCES ELEMENT

Policy 12. Monitor effectiveness of existing arrangements for prevention and dealing with oil and chemical spills in the Bay Area.

Action 12.8 Amend county spill plans to include containment of all non-hazardous chemical spills exceeding 100 gallons.

Action 12.9 Prepare and implement a regionally-coordinated chemical spill response plan.

A description of the new Water Quality Management Plan recommendations and their associated environmental impacts is summarized in the following revision to Table 5 on plan recommendations.

AMENDMENT TO ENVIRONMENTAL MANAGEMENT PLAN

CHAPTER III - WATER QUALITY MANAGEMENT

SECTION F - PLAN RECOMMENDATIONS

TABLE 5 - WATER QUALITY MANAGEMENT PLAN RECOMMENDATIONS

POLICY 1. IMPROVE UNDERSTANDING OF BAY-DELTA ESTUARINE SYSTEM AND THE FATE AND EFFECTS OF POLLUTANTS ENTERING IT

RECOMMENDATIONS	GENERAL DESCRIPTION	RESPONSIBLE AGENCY (OR AGENCIES)	SCHEDULE FOR ACTION	LEGAL AUTHORITY	TOTAL COST/YEAR OF RECOMMENDED ACTION	PORTION OF TOTAL COST/YR. DIRECTLY ATTRIBUTABLE TO THIS PLAN	FINANCING MECHANISM	MEASURES TO ENSURE IMPLEMENTATION
1.6 Support programs and proposals to protect water quality of the San Francisco Bay-Delta estuarine system.	Review administrative and legislative proposals affecting the Delta and support those that would protect the water quality of the Bay-Delta estuarine system.	ABAG	Continuous	FWPCA Section 208(J)	To be determined.	To be determined	To be determined	Voluntary

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
The following impacts are associated with Policy 1 in general.			
<u>Air Quality</u>	<u>Financial</u>	<u>Consumer Expenditures</u>	<u>Housing Supply</u>
o No impacts.	o Costs would be met by participants; dischargers, counties, RWQCB, SWRCB, and EPA.	o No impact	o No impacts.
<u>Water Quality</u>	<u>Institutional</u>		<u>Physical Mobility</u>
o Would improve water quality indirectly--provides data to make informed decisions.	o May result in higher level of cooperation among agencies and dischargers.		o No impacts.
<u>Physical Resources</u>	o May improve accuracy and credibility of research and monitoring results.		<u>Health and Safety</u>
o Would benefit physical resources indirectly as water quality is improved, e.g., the aquatic community, flora, fauna and recreation.			o Might uncover health and safety problems as a result of research or monitoring.
<u>Energy</u>			o Would affect decisions on water quality that affect public health.
o No impacts.			<u>Sense of Community</u>
<u>Amenities</u>			o No impact.
o Would affect amenities indirectly; highly dependent on nature of actions taken as a result of monitoring data.			<u>Urban Patterns</u>
			o No impact.
			<u>Equity</u>
			o No impact.

POLICY 5. PROVIDE FACILITIES NEEDED FOR MUNICIPAL SEWERAGE SERVICE
AND WATER QUALITY PROTECTION

RECOMMENDATIONS	GENERAL DESCRIPTION	RESPONSIBLE AGENCY (OR AGENCIES)	SCHEDULE FOR ACTION	LEGAL AUTHORITY	TOTAL COST/YEAR OF RECOMMENDED ACTION	PORTION OF TOTAL COST/YR. DIRECTLY ATTRIBUTABLE TO THIS PLAN	FINANCING MECHANISM	MEASURES TO ENSURE IMPLEMENTATION
5.3 Consolidate preparation of 20-year municipal waste-water facilities project list	Separate but similar lists previously have been prepared by ABAG and the RWQCB. The RWQCB would compile the draft list. ABAG would review the draft list for consistency with the WQMP and conformity with other environmental programs or plans. ABAG would amend the list as appropriate into the WQMP. Inconsistencies would be returned to the RWQCB for joint resolution.	RWQCB ABAG	July 1980 and continuously thereafter	FWPCA, Porter Cologne Act; Article 5.5, Government Code; Clean Air Act	\$20,000	\$20,000	Sec.106 and 201 grant funds, state funds	SWRCB and EPA review

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
The following impacts are associated with the provision of facilities identified in the consolidated 20-year municipal facilities list (Actions 5.1 and 5.2). Additions or alterations are noted in brackets.			
<u>Air Quality</u> <ul style="list-style-type: none"> o Temporary dust problems during facility construction. o Poorly designed or operated facilities may cause local odor problems. o Localized potential increases in carbon monoxide levels. 	<u>Financial</u> <ul style="list-style-type: none"> Direct Public Cost of Implementation <ul style="list-style-type: none"> o Capital (20 year construction estimate) \$2.4 billion. o Operation and maintenance estimate \$122 million/year in 1995. Fiscal Effects on Local Governments <ul style="list-style-type: none"> o Local governments and agencies would have to finance the local share of construction at a minimum of 12.5% of total costs or an estimated \$19 million (annualized) and all of \$71 million (annualized) operation and maintenance costs. o Specific fiscal effects depend on choice of financing mechanisms. Increased user charges, connection fees and property taxes in service areas would increase revenues of sewerage service agencies. o Indirect fiscal impacts would result from costs to provide public services (police, fire, etc.) to new development. 	<u>Production of Goods and Services</u> <ul style="list-style-type: none"> o Employment - approximately 35,000 temporary and 700 permanent jobs would result from facility construction and operation. o Could permit influx of industrial/commercial businesses that would use municipal sewers. o In some cases would permit industry to stay rather than be closed by stringent direct discharge requirements. 	<u>Housing Supply</u> <ul style="list-style-type: none"> o Treatment facilities would accommodate approximately between 700,000 and 900,000 new housing units in the region by the year 2000. o Provision of sewerage service in unsewered areas could increase the supply and costs of housing in those areas.
<u>Water Quality</u> <ul style="list-style-type: none"> o At minimum would result in removal of suspended solids, some toxicants, some nutrients, most bacteria and most oxygen demanding substances. o Treatment plants would provide high bacteria and virus removal, nutrient removal and/or reduction of toxicants and resistant organic compounds. o Growth accommodated would increase surface runoff by increasing the amount of impervious surfaces. o Reclaimed wastewater would increase supplies of water for agricultural, industrial, park and golf course irrigation. 	<u>Physical Resources</u> <ul style="list-style-type: none"> o Water quality improvements benefit fish and wildlife resources. o Would increase sewage solids volumes and would require coordination with regional Wastewater Solids Study plan results. o Consumes construction materials (mineral resources). o Would result in disruptions of adjacent land uses and reduced supply of resources (e.g., agricultural lands). o Growth accommodated would consume between 190,000 and 250,000 acres of land by 2000 or 50-65% of land available for development. o May reduce wildlife habitats through encroachment or filling of marshes, mudflats. o May alter the supply of land available for recreation uses. 	<u>Income and Investment</u> <ul style="list-style-type: none"> o Indirect increase in plant operators and construction workers wages. o Facility construction will compete for funds on money markets. 	<u>Physical Mobility</u> <ul style="list-style-type: none"> o Localized, short term disruptions in mobility may result during construction. o Congestion may result unless transportation improvements are made to serve development accommodated by improvements in wastewater facilities.
	<u>Institutional</u> <ul style="list-style-type: none"> o Would require growth of existing agencies to provide expanded sewerage services. o Would require additional staff resources to provide public services to new development. o Would enable local governments to meet requirements of Federal and State standards. o Some projects may conflict with local general plans. o Involves coordination between ABAG and the Regional Water Quality Control Board. 	<u>Consumer Expenditures</u> <ul style="list-style-type: none"> o Increased costs to consumers for connection to sewerage system. o Operation and maintenance costs are paid for by user charges. o Property taxes may increase in service areas to retire bonds issued to finance construction. 	<u>Health and Safety</u> <ul style="list-style-type: none"> o Reduced health risks should result where discharges of poorly treated wastes are eliminated. o Indirect health benefits from water quality improvements. o Flood, subsidence, tsunami, landslide and seismic hazards may constrain the location, design and operational reliability of facilities. o Growth accommodated may affect local governments' effort to direct development away from hazardous areas.
<u>Energy</u> <ul style="list-style-type: none"> o Consumes electricity, gas and diesel fuel during construction. o Commits to energy use for treatment plant operation. o Advanced physical-chemical plants sume significant amounts of energy. o Could result in energy production benefits when co-combustion projects (sludge and refuse) are undertaken at the plant site. 			<u>Sense of Community</u> <ul style="list-style-type: none"> o Character of neighborhoods and communities may change. o Provision of sewerage services in rural areas tends to change the character of rural communities to urban/suburban.
<u>Amenities</u> <ul style="list-style-type: none"> o Facility construction, operation and design may have adverse visual, odor and noise effects. 			<u>Urban Patterns</u> <ul style="list-style-type: none"> o Collection systems in unsewered areas outside of urban service areas may be in conflict with local general plans.
			<u>Equity</u> <ul style="list-style-type: none"> o Sewer service charges are based on use and not ability to pay. o User charges, connection fees and property tax increases would impact low and moderate income households differently than high income households. o Development and housing impacts may affect the ability of low and moderate income families to afford adequate housing.

POLICY 5. PROVIDE FACILITIES NEEDED FOR MUNICIPAL SEWERAGE SERVICE
AND WATER QUALITY PROTECTION

RECOMMENDATIONS	GENERAL DESCRIPTION	RESPONSIBLE AGENCY (OR AGENCIES)	SCHEDULE FOR ACTION	LEGAL AUTHORITY	TOTAL COST/YEAR OF RECOMMENDED ACTION	PORTION OF TOTAL COST/YR. DIRECTLY ATTRIBUTABLE TO THIS PLAN	FINANCING MECHANISM	MEASURES TO ENSURE IMPLEMENTATION
5.4 Evaluate potential recreational facilities and benefits during water quality protection facility planning	Step 1 of 201 facilities planning and non-point pollution control facility planning will include evaluation and planning of potential associated recreational facilities	Sewerage agencies, cities, counties	See 20-year project list	FWPCA, Sec.208(b) (2)(A)	\$120,000 est.	-0-	Federal & State grants + user charges + assessments	SWRCB and EPA approval of facility plans

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
<u>Air Quality</u> <ul style="list-style-type: none"> o Temporary dust problems during construction of plants and interceptors o Facilities design and operation requires control of odor nuisance to allow recreational use nearby o Localized air pollutant emissions may occur with auto access to facilities <u>Water Quality</u> <ul style="list-style-type: none"> o Treatment plants would provide high bacteria and virus removal, reduction in suspended solids, oxygen-demanding substances and some nutrients. o Reclaimed wastewater would increase water supplies for agricultural and landscape irrigation and creation/augmentation of ponds, wetlands and streams <u>Physical Resources</u> <ul style="list-style-type: none"> o Water quality improvements benefit fish and wildlife resources for recreation o Agricultural, landscape irrigation and aquatic system creation can perpetuate open space resource o Requires coordination of wastewater facilities design to minimize reduction of recreation uses and wildlife habitats o Wastewater facilities design can enhance recreation uses/natural resources in selected areas as tradeoffs for damage by facilities construction o Wastewater and surface runoff facilities can provide new recreation opportunities <u>Energy</u> <ul style="list-style-type: none"> o Incremental consumption of gas, electricity and diesel fuel during construction varying with type of recreational use added o Recreation irrigation and water supply requires electricity/fuel for pumping/conveyance <u>Amenities</u> <ul style="list-style-type: none"> o Improved visual amenities through open space preservation and new or enhanced recreational facilities o Wastewater facilities construction, design and operation will include greater consideration for odor and noise reduction and visual enhancement. 	<u>Financial</u> <p>Direct Public Cost of Implementation:</p> <ul style="list-style-type: none"> o Design and construction costs are project-specific. Example costs: <ul style="list-style-type: none"> -Wetland system (20 acres) in 1.5 mgd treatment facility - total facility cost \$94,000, O&M \$1200/yr. + 6 person-mo. (Mt. View Sanitary Dist.) -East Bay Dischargers Auth. reclaimed water supply to Coyote Hills Regional Park wetlands: capital + design costs = \$248,100 <p>Fiscal Effects on Local Governments:</p> <ul style="list-style-type: none"> o Local entities must finance 100% of incremental project costs for recreation facilities. o Local entities must finance all annual operation and maintenance (O&M) costs. o Potential \$ savings in multi-purpose facilities. Principally, land acquisition costs may become negligible for the recreational facilities. o Specific fiscal impacts depend on choice of financing mechanisms. Bonds, increased user charges, connection fees and property taxes in service areas would increase revenues of sewerage service agencies. o Indirect fiscal impacts would result from costs to provide public services to new or improved recreational facilities. <u>Institutional</u> <ul style="list-style-type: none"> o Would require coordination of existing agencies to manage multi-purpose facility o May require additional staff resources to provide public services to new facility o Would fulfill recreation element of local general plans or may require general plan revision 	<u>Production of Goods and Services</u> <ul style="list-style-type: none"> o Employment- temporary and permanent job creation would depend on type of multi-purpose recreational use facilities for construction and operation <u>Income and Investment</u> <ul style="list-style-type: none"> o Increased wages and salaries may result from jobs created o Facility construction and operation will compete for local agency funds o Recreational facilities with wastewater projects should be planned to provide benefits (\$/total visitor-days) exceeding incremental capital and O&M costs <u>Consumer Expenditures</u> <ul style="list-style-type: none"> o Operation and maintenance costs of multi-purpose recreational facilities may be paid for by user charges 	<u>Housing Supply</u> <ul style="list-style-type: none"> o May indirectly benefit housing rehabilitation programs where new recreation opportunities and open space are provided <u>Physical Mobility</u> <ul style="list-style-type: none"> o Localized, short-term disruptions in mobility may result during construction. o New or improved recreational facilities associated with water programs can be designed for better access to handicapped persons. <u>Health and Safety</u> <ul style="list-style-type: none"> o Water quality improvements can provide reduced health risks in recreation areas near wastewater discharges o Indirect health benefits accrue from improvement of wildlife sport populations through cleaner wastewater discharges. <u>Sense of Community</u> <ul style="list-style-type: none"> o Improved visual amenities of open space can contribute to improved sense of community. o New or improved recreation opportunities in local areas promotes sense of community. <u>Urban Patterns</u> <ul style="list-style-type: none"> o No impacts <u>Equity</u> <ul style="list-style-type: none"> o User charges and property tax increases would impact low and moderate income households differently than high income households. o Some types of recreation opportunities, (e.g. neighborhood parks) provide benefits only to localized areas.

POLICY 5. PROVIDE FACILITIES NEEDED FOR MUNICIPAL SEWERAGE SERVICE
AND WATER QUALITY PROTECTION

RECOMMENDATIONS	GENERAL DESCRIPTION	RESPONSIBLE AGENCY (OR AGENCIES)	SCHEDULE FOR ACTION	LEGAL AUTHORITY	TOTAL COST/YEAR OF RECOMMENDED ACTION	PORTION OF TOTAL COST/YR. DIRECTLY ATTRIBUTABLE TO THIS PLAN	FINANCING MECHANISM	MEASURES TO ENSURE IMPLEMENTATION
5.5 Incorporate recreational facilities into water quality protection projects where economically justified	Facilities to be incorporated where the total recreational benefit exceeds the incremental cost and is compatible with local park or open space plans	Sewerage agencies, cities, counties	See 20-year project list; non-point facilities as developed	FWPCA, Sec.208(b)(2)(A)	Undetermined	-0-	Local funds	Voluntary
5.6 Consider recreational facilities as mitigation measures offsetting possible negative impacts of water quality protection projects	Reviewing agencies to accept recreational facilities as mitigation measures to related negative impacts in EIS and EIR documents	Permitting and funding agencies as applicable	See 20-year project list; non-point facilities as developed	NEPA (P.L. 90-190, Sec.102(2)(C)) CEQA (CRC Title 14, Sec.14085(h))	-0-	-0-		SWRCB and EPA review

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
<p>Impacts same as noted for Action 5.4.</p>	<p>Impacts same as noted for Action 5.4.</p>	<p>Impacts same as noted for Action 5.4.</p>	<p>Impacts same as noted for Action 5.4.</p>
<p>Impacts same as noted for Action 5.4.</p>	<p>Impacts same as noted for Action 5.4.</p>	<p>Impacts same as noted for Action 5.4.</p>	<p>Impacts same as noted for Action 5.4.</p>

POLICY 8. ESTABLISH A PROGRAM OF SURFACE RUNOFF CONTROLS THAT EMPHASIZE
LOW COST MEASURES TO REDUCE POLLUTANT LOAD FROM THIS SOURCE

RECOMMENDATIONS	GENERAL DESCRIPTION	RESPONSIBLE AGENCY (OR AGENCIES)	SCHEDULE FOR ACTION	LEGAL AUTHORITY	TOTAL COST/YEAR OF RECOMMENDED ACTION	PORTION OF TOTAL COST/YR. DIRECTLY ATTRIBUTABLE TO THIS PLAN	FINANCING MECHANISM	MEASURES TO ENSURE IMPLEMENTATION
8.3 Adopt regionally consistent definition of Best Management Practices and revise as new information warrants	Appendix A, specifications Manual for Surface Runoff Control Measures, would provide information on BMPs and implementation	ABAG, counties	June 1980	FWPCA	\$ 40,000	\$ 40,000	Federal Sec.208 grants, local match	Voluntary

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
<u>Air Quality</u> o No impacts <u>Water Quality</u> o No impacts <u>Physical Resources</u> o No impacts <u>Energy</u> o No impacts <u>Amenities</u> o No impacts	<u>Institutional</u> o Would facilitate comparable information exchange on Best Management Practices between agencies. o Would serve as reference document for planning and erosion control enforcement. o Can reduce redundancy in development of technical information	<u>Production of Goods and Services</u> o No impact <u>Income and Investment</u> o No impact <u>Consumer Expenditures</u> o No impact	<u>Housing Supply</u> o No impact <u>Physical Mobility</u> o No impact <u>Health and Safety</u> o No impact <u>Sense of Community</u> o No impact <u>Urban Patterns</u> o No impact <u>Equity</u> o No impact

POLICY 8. ESTABLISH A PROGRAM OF SURFACE RUNOFF CONTROLS THAT EMPHASIZE
LOW COST MEASURES TO REDUCE POLLUTANT LOAD FROM THIS SOURCE

RECOMMENDATIONS	GENERAL DESCRIPTION	RESPONSIBLE AGENCY (OR AGENCIES)	SCHEDULE FOR ACTION	LEGAL AUTHORITY	TOTAL COST/YEAR OF RECOMMENDED ACTION	PORTION OF TOTAL COST/YR. DIRECTLY ATTRIBUTABLE TO THIS PLAN	FINANCING MECHANISM	MEASURES TO ENSURE IMPLEMENTATION
8.4 Adopt and implement effective ordinances and programs for the control of construction related erosion	Ordinances would be adopted with at least the minimum features identified in Appendix	Counties and cities	July 1980 to June 1981	Local government enabling legislation	Undetermined	Undetermined	Permit fees Local funds	RWQCB can take action when water quality is impaired

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
Note: The impacts presented below are derived from Policy 8 "Control Erosion/Improve Agricultural Practices." New or modified impacts are noted in brackets.			
<u>Air Quality</u> <ul style="list-style-type: none"> o Localized reductions in dust/particulate matter from construction activities 	<u>Financial</u> <ul style="list-style-type: none"> Direct Public Costs of Implementation <ul style="list-style-type: none"> o See County Surface Runoff control Plans Cost Data o See ABAG Specifications manual for surface runoff control measures for example costs Fiscal Effects on Local Governments <ul style="list-style-type: none"> o Local government would spend an additional \$10-50/unit for plan review and site inspection. This additional cost could be recovered by increasing permit fees. o Performance bonds may offset costs of clean-up o Savings in operation and maintenance costs (e.g., in reservoirs) of local governments and special districts may result - an estimated \$5 million is spent annually to alleviate lake problems such as siltation, algae blooms, aquatic weeds, fish kills, etc. 	<u>Production of Goods and Services</u> <ul style="list-style-type: none"> o Employment - Creation of job opportunities may result (e.g., landscape and engineering consultants, construction firms) o Increased demand for goods and services may result in some new firms entering market 	<u>Housing Supply</u> <ul style="list-style-type: none"> o Housing costs may increase \$300-600 unit (\$10-50 permit fees + \$250-550 design + installation of erosion control measures) where this is a new component of housing construction costs.
<u>Water Quality</u> <ul style="list-style-type: none"> o Reduced amounts of sediments and nutrients entering waterbodies from construction activities o Reduced siltation of stream channels, lakes and reservoirs and annual sediment loadings to the Bay contributed by land disruption by human activities o Reduced turbidity, algae blooms, and oxygen depletion in streams, lakes and reservoirs. o Reduced incidence of impaired use (e.g., water supply) of waterbodies o Reduced amounts of suspended solids available for chemical, pesticide and heavy metal binding 		<u>Income and Investment</u> <ul style="list-style-type: none"> o Effects on wages and salaries depends on control measures effects on production and employment o Increased profits for firms benefiting from increased demand for goods and services o Profit of firms and individuals bearing costs of controls should not be affected assuming costs can and will be passed on to the consumer (industry dependent response) 	<u>Physical Mobility</u> <ul style="list-style-type: none"> o Localized, temporary disruption in physical mobility during construction activities
<u>Physical Resources</u> <ul style="list-style-type: none"> o Reduction in fish kills and maintenance of balanced aquatic system. o Indirectly benefits productivity of aquatic community by preventing or reducing interference with photosynthesis, elimination of excess food sources o Reduced losses of sand and gravel and productive topsoil o May indirectly enhance recreation potential and use of waterbodies and adjacent lands 	<u>Institutional</u> <ul style="list-style-type: none"> o Effective implementation would require the cooperation of numerous public agencies such as City and County Planning and Building Departments, County Public Works and Flood Control Districts, and Soil Conservation Service Regional Offices o Some aspects of erosion control programs may meet with public opposition o Additional staff resources may be required to implement and enforce the recommendations 	<u>Consumer Expenditures</u> <ul style="list-style-type: none"> o Where private industry costs to control erosion are passed on in product prices, costs of goods and services will increase 	<u>Health and Safety</u> <ul style="list-style-type: none"> o Indirect public safety benefits of reduced flood peaks and flood risks associated with siltation and alteration of natural flow regimes in streams o Reduced erosion and mudslide risks o Reduced development in hazardous areas with attendant public safety benefits o Reduced conditions conducive to propagation of vectors and other noxious plant and animal species o Retention or debris basins may become a health hazard if water stagnates and vector problems result or a safety hazard (drowning)
<u>Energy</u> <ul style="list-style-type: none"> o May indirectly result in energy savings where remedial dredging activities are reduced 		<u>Direct Private Costs of Implementation</u> <p>Example Costs of Erosion Control</p> <p>Hydroseeding/Hydromulching \$425-900/acre</p> <p>Siltation Berm \$7.33/lineal foot</p> <p>Waterway Fencing \$1-2.75/lineal foot</p> <p>Range Seeding \$18/acre</p> <p>Construction erosion controls for 80 unit subdivision may cost \$500-700/acre</p>	<u>Sense of Community</u> <ul style="list-style-type: none"> o No impacts
<u>Amenities</u> <ul style="list-style-type: none"> o Visual benefits of less turbid waters, reduced algae blooms and reduced eroded areas o Visual benefits of preserving the natural state of the environment 			<u>Equity</u> <ul style="list-style-type: none"> o Indirect impacts on special population groups depends on financing mechanism(s) proposed as well as actual impacts on housing supply and costs.
			<u>Urban Patterns</u> <ul style="list-style-type: none"> o Erosion control requirements should not in and of themselves affect urban patterns

POLICY 8. ESTABLISH A PROGRAM OF SURFACE RUNOFF CONTROLS THAT EMPHASIZE
LOW COST MEASURES TO REDUCE POLLUTANT LOAD FROM THIS SOURCE

RECOMMENDATIONS	GENERAL DESCRIPTION	RESPONSIBLE AGENCY (OR AGENCIES)	SCHEDULE FOR ACTION	LEGAL AUTHORITY	TOTAL COST/YEAR OF RECOMMENDED ACTION	PORTION OF TOTAL COST/YR. DIRECTLY ATTRIBUTABLE TO THIS PLAN	FINANCING MECHANISM	MEASURES TO ENSURE IMPLEMENTATION
8.5 Implement other Best Management Practices as needed to protect beneficial uses of receiving waters	Additional practices other than 8.4 and 8.5 would be implemented as needed to alleviate known water quality problems	Counties, cities, Resource Conservation Districts, and other special districts	As needed	Local government enabling legislation	Undetermined	Undetermined	Local funds	RWQCB can take action when water quality is impaired

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
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EXAMPLE CONTROL MEASURES
The following control measures and their associated impacts were presented for Policy 8 in general.

Air Quality

- o Temporary and localized air pollutant emission increases may occur during sweeping operations
- o Reduced quantities of dust available for suspension as particulate matter

Water Quality

- o Reduced transport of heavy metals, nutrients, pesticides, organic and microbiological pollutants into water bodies. Typical removals: 30-50% total solids, 25-40% BOD, 25-40% Kjeldahl nitrogen, 8-20% phosphate, 25-60% heavy metals
- o Reduced incidence of impaired uses (e.g., water supply) of water bodies

Physical Resources

- o May indirectly benefit aquatic organisms
- o Enhanced water recreation potential and use
- o May reduce landfill capacities needed to accommodate residues.

Energy

- o Sweeping equipment uses energy

Amenities

- o Improved visual amenities on paved surfaces and in water bodies e.g., reduced floatable solids
- o Temporary, localized noise level increases from equipment operation (70-80 dBA at 50' on flat grade) May be mitigated by noise abatement measures

Financial

- Direct Public Costs of Implementation
 - o See County Surface Runoff control Plans Cost Data
 - o Example Costs of Street Sweeping Programs
 - \$16 per cu. yd. of material collected
 - \$18 per ton of material collected
 - \$4-5 per curb mile

Fiscal Effects on Local Governments

- o Direct impacts on fiscal resources depend on revenue source(s) used - See County Plans

Institutional

- o May require intergovernmental coordination
- o May require additional staff resources to improve efficiency of sweeping programs
- o May impact other public service levels

Production of Goods & Services

- o Employment - Creation of job opportunities in the private sector may result (administrative and operation and maintenance jobs)

Income and Investment

- o No impacts

Consumer Expenditures

- o No impacts

Housing Supply

- o No impacts

Physical Mobility

- o Temporary, localized disruption of physical mobility may result during sweeping operations. Can be mitigated by scheduling work during off-peak hours

Health & Safety

- o Reduced health risks associated with water quality improvements and vector control benefits

Sense of Community

- o Visual amenity benefits on streetscape and in urban access water bodies may enhance the sense of community

Equity

- o Indirect impacts on special population groups would depend on the financing mechanisms proposed for implementation. In general, payment through the property tax mechanism differentially impacts low- and moderate-income groups

Urban Patterns

- o No impacts

Improved Street Sweeping



ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
<u>Air Quality</u> <ul style="list-style-type: none"> o Reduced odors when accumulated debris is removed; decomposition prevented. o Temporary, localized air pollutant emission increases may occur during cleaning operations when motorized vehicles are used. <u>Water Quality</u> <ul style="list-style-type: none"> o Removal of accumulated solids (sediments, litter, leaves) may reduce BOD, Nitrates, Phosphates and oil and grease loads to water bodies from first flush effects of storms. o Reduced incidence of impaired uses (e.g. water supply) of water bodies. <u>Physical Resources</u> <ul style="list-style-type: none"> o May benefit aquatic organisms. o May impact land fill capacities where increased cleaning results in increased quantities of solids for disposal (e.g. I.T. material/year/catch basin; open drainage channel deposits vary). <u>Energy</u> <ul style="list-style-type: none"> o Motorized equipment uses fuel. <u>Amenities</u> <ul style="list-style-type: none"> o Temporary localized noise level increases from equipment operation may be mitigated by noise abatement measures. 	<u>Financial</u> <p>Direct Public Costs of Implementation</p> <ul style="list-style-type: none"> o See County Surface Runoff control Plans Cost Data. <p>Example Costs:</p> <p>Catch basin Cleaning Costs \$6-8/catch basin or \$4-15/cu yd. Material Collected; Sewer Cleaning Costs \$50-100/cu. yd. material removed.</p> <p>Fiscal Effects on Local Government</p> <ul style="list-style-type: none"> o Direct impacts on fiscal resources depend on revenue source(s) used - See County Plans. o May be consolidated with on-going sewer system maintenance program costs. <u>Institutional</u> <ul style="list-style-type: none"> o May require additional staff resources (public workpersonnel on short term basis and inspection, administrative personnel on long-term basis) or reallocation of resources. o May result in displacement of another public service (or level of service) during concentrated cleaning effort periods. o May result in agency staff opposition to changed work assignments and schedules and added work loads. 	<u>Production of Goods and Services</u> <ul style="list-style-type: none"> o Employment- Creation of job opportunities in the private sector may result (e.g. engineering consultants, equipment manufacturers, monitoring and inspection personnel). <u>Income and Investment</u> <ul style="list-style-type: none"> o Effects on wages and salaries depend on need for additional staff to meet demand. o Increased profits may result from demand for private sector goods and services. <u>Consumer Expenditures</u> <ul style="list-style-type: none"> o No impacts. 	<u>Housing Supply</u> <ul style="list-style-type: none"> o No impacts. <u>Physical Mobility</u> <ul style="list-style-type: none"> o Temporary, localized disruptions in physical mobility may occur during cleaning operations. May be mitigated by scheduling operations during off peak hours. <u>Health and Safety</u> <ul style="list-style-type: none"> o Water quality benefits may have indirect health benefits. o Cleaning activities may also benefit flood control channel maintenance. <u>Sense of Community</u> <ul style="list-style-type: none"> o No impacts. <u>Equity</u> <ul style="list-style-type: none"> o Impacts on special population groups depends on the financing mechanism(s) chosen to implement and the job benefits distribution. <u>Urban Patterns</u> <ul style="list-style-type: none"> o No impacts.

Clean Storm Collection System



ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
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Air Quality

- o Reduced incidences of odors associated with decomposing debris and litter in water bodies and stormwater collection systems.

Water Quality

- o Reduced litter and organics (BOD phosphorus, nitrogen) available for introduction to stormwater system and waterbodies.
- o Reduced blockage of storm channels.
- o Reduced incidence of impaired uses (e.g., water supply) of waterbodies.

Physical Resources

- o May indirectly benefit aquatic organisms.
- o Enhanced water recreation potential and use where debris and litter associated pollution impairs use.
- o May impact solid waste management practices - landfill capacities may be affected by added quantities of solids for disposal; may be an added incentive for recycling, neighborhood composting and other resource recovery programs.

Energy

- o When augmenting alternative solid waste management programs, may benefit energy conservation efforts.

Amenities

- o Visual amenity benefits of cleaner landscapes and reduced debris in waterbodies.

Financial

Direct Public Costs of Implementation

- o See County Plans Cost Data.

Fiscal Effects on Local Government

- o Direct impacts on fiscal resources depend on source(s) of revenue used to fund program efforts - See County Plans.
- o State subvention funds and fines may offset costs of enforcement and education.
- o Reduced amounts of litter may result in cost savings in waste collection programs.

Institutional

- o May require intergovernmental coordination between State, regional and local government agencies and special districts.
- o Improved enforcement and intensified anti-litter advertising campaign may require additional staff or reallocation of agency personnel.

Production of Goods and Services

- o Employment - no impact expected in private sector.

Income and Investment

- o Public employment benefits may result in increases in wages and salaries.

Consumer Expenditures

- o No impacts.

Housing Supply

- o May indirectly benefit housing rehabilitation programs where litter control programs improve aesthetics of neighborhoods.

Physical Mobility

- o No impacts.

Health and Safety

- o Water quality improvements may have indirect health benefits.
- o Reduced litter may enhance vector control programs by eliminating or reducing habitats.

Sense of Community

- o Enhanced neighborhood aesthetics may contribute to improved sense of community.

Equity

- o Impacts on special population groups depends on financing mechanism(s) chosen to implement the program.
- o Where programs reduce litter and vectors with associated health benefits in areas with large concentrations of special population groups, those groups will benefit.

Urban Patterns

- o No impacts.

Control Littering



ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
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Air Quality

- o May reduce incidence of odors associated with decomposing debris in water bodies and stormwater collection systems

Water Quality

- o Reduced amounts of debris and oil may reduce BOD, phosphates, nitrogen, suspended solids, heavy metals introduced to stormwater system and waterbodies
- o Less oil would be available to leach into groundwater supplies
- o Reduced incidence of impaired uses (e.g., water supply) of water bodies

Physical Resources

- o May indirectly benefit aquatic organisms by removing toxic substances from the environment
- o Enhance water-oriented recreation potential and use where dumping of debris and oil impairs use
- o Reduced dumping could reduce quantities of solid waste which are disposed of in landfills
- o Waste from re-refineries is high in concentrated metals and sulfur. Sludge created will require careful solids management

Energy

- o Oil recycling may augment energy conservation efforts - 700 homes could be heated with BTU equivalent of oil currently dumped
- o Recycled oil can be used to produce other energy consumptive products such as asphalt
- o Re-refineries use part of waste product as fuel to power lighting and pump operations

Amenities

- o Visual amenity benefits from cleaner landscape and less debris and oil slicks in water bodies

Financial

Direct Public Costs of Implementation

- o See County Surface Runoff Management Plans Cost Data

Fiscal Effects on Local Governments

- o Direct impacts on fiscal resources depend on source(s) of revenue used to fund programs - See County Plans
- o Reduced dumping may result in some cost and savings in public works programs (Ex. cost to remove oil dumped is \$150/gallon)
- o Fines for illegal dumping may offset costs of additional enforcement efforts
- o Use of re-refined oil by public agencies would result in savings in fleet operation and maintenance costs
- o Public agency oil recycling would generate revenues from sale of oil to re-refineries

Institutional

- o May require additional staff resources to improve regulation and enforcement and educate public
- o May require cooperation of public agencies with regulatory and program responsibilities for control of dumping and oil recycling
- o May require additional regulations and guidelines to ensure proper labeling, handling and accessibility to re-refined oil

Production of Goods & Services

- o Employment - Job opportunities may result if extensive oil recycling programs stimulate demand for more recycling firms
- o Production of recycled oil may increase
- o Additional firms may enter the market to meet increased demand

Income & Investment

- o Increased wages and salaries may result from jobs created
- o May increase profits of firms benefited by increased oil recycling (Example: prices fluctuate with oil costs)-service stations receive 8¢/gallon, used oil collection agents - 16¢/gallon, re-refineries \$1.20 - 1.60/gallon)

Consumer Expenditures

- o Retail markets for re-refined oil are generally lacking. At such time as they are developed, consumers would receive the benefit of access to cost savings in purchase of re-refined oil

Housing Supply

- o No impact

Physical Mobility

- o No impact

Health & Safety

- o Water Quality improvements may have indirect health benefits
- o Reduced dumping of debris and oil may augment vector and nuisance plant control program

Sense of Community

- o Enhanced neighborhood and physical environment aesthetics may contribute to improved sense of community

Equity

- o Impacts on special population groups depends on financing mechanism(s) chosen to implement the programs
- o Where programs reduce dumping and aid vector control and associated public health and enhancement in areas with large concentrations of special population groups, those groups will benefit

Urban Patterns

- o No impacts

Control Dumping

Revised Assessment on Page 35

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
<p><u>Air Quality</u></p> <ul style="list-style-type: none"> o Localized reductions in dust/particulate matter from construction activities. <p><u>Water Quality</u></p> <ul style="list-style-type: none"> o Reduced amounts of sediments and nutrients entering waterbodies from agricultural and construction activities. o Reduced siltation of stream channels, lakes and reservoirs and annual sediment loadings to the Bay contributed by land disruption by human activities. o Reduced turbidity, algae blooms, and oxygen depletion in streams, lakes and reservoirs. o Reduced incidence of impaired use (e.g., water supply) of waterbodies. o Reduced amounts of suspended solids available for chemical, pesticide and heavy metal binding. <p><u>Physical Resources</u></p> <ul style="list-style-type: none"> o Reduced incidence of burial of aquatic bottom organisms and fish kills may result. o Indirectly benefits productivity of aquatic community by preventing or reducing interference with photosynthesis, elimination of food sources. o Reduced losses of productive topsoil, organic matter should enhance the productivity of agriculture and timber production activities. o May indirectly enhance recreation potential and use of waterbodies and adjacent lands. <p><u>Energy</u></p> <ul style="list-style-type: none"> o May indirectly result in energy savings where dredging activities are reduced. <p><u>Amenities</u></p> <ul style="list-style-type: none"> o Visual amenity benefits of less turbid waters and reduced areas. o Visual amenity benefits of preserving the natural state of the environment. 	<p><u>Financial</u></p> <p>Direct Public Costs of Implementation</p> <ul style="list-style-type: none"> o See County Surface Runoff control Plans Cost Data. o See Council of Bay Area Resource Conservation Districts Handbook of Best Management Practices for example costs. <p>Fiscal Effects on Local Governments</p> <ul style="list-style-type: none"> o Direct impacts on fiscal resources depend on revenue source(s) used - See County Plans. o Permit and plan review fees may offset local costs to implement and enforce. o Performance bonds may offset costs of clean-up. o Savings in operation and maintenance costs (e.g., in reservoirs) of local governments and special districts may result - an estimated \$5 million is spent annually to alleviate lake problems such as siltation, algae blooms, aquatic weeds, fish kills, etc. <p><u>Institutional</u></p> <ul style="list-style-type: none"> o Effective implementation would require the cooperation of numerous public agencies such as National Park Service, U. S. Geological Survey, Corps of Engineers, California Department of Fish & Game, Flood Control and Water District, cities and counties. o New or amended ordinance, regulations or administrative rule-making may be required. o Some aspects of erosion control program may meet with public opposition. <p>Additional resources may be required to monitor and enforce the recommendations.</p>	<p><u>Production of Goods and Services</u></p> <ul style="list-style-type: none"> o Employment - Creation of job opportunities may result (e.g., landscape and engineering consultants, construction firms). o Increased demand for goods and services may result in some new firms entering market. <p><u>Income and Investment</u></p> <ul style="list-style-type: none"> o Effects on wages and salaries depends on control measures effects on production and employment. o Increased profits for beneficiaries from increased demand for goods and services. o Profits of firms and individuals bearing costs of controls should not be affected as sum of gains can and will be passed on to the consumer (industry dependent response). <p><u>Consumer Expenditure</u></p> <p>Where private industry costs of erosion control are passed on to product prices, costs of goods and services will increase.</p> <p>Direct Private Costs of Implementation</p> <p>Example Costs of Erosion Control and Agricultural Management Practices:</p> <ul style="list-style-type: none"> o Hydroseeding/Hydromulching \$425-900/acre o Siltation Berm \$7.33/lineal foot o Waterway Fencing \$1-2.75/lineal foot o Range Seeding \$18/acre o Construction erosion controls for 80 unit subdivision may cost \$500-700/acre. 	<p><u>Housing Supply</u></p> <ul style="list-style-type: none"> o Decreased supply (e.g., < 200/acre instead of > 400/acre on slopes > 15%) and increased costs of housing (e.g., the average price of a house may increase \$200,000 - an example design and installation cost of a best management practice) may result where erosion controls are a new component of the development approval process. <p><u>Physical Mobility</u></p> <ul style="list-style-type: none"> o Localized temporary disruption in physical mobility during construction activities. <p><u>Health and Safety</u></p> <ul style="list-style-type: none"> o Indirect public safety benefits of reduced flood peaks and flood risks associated with siltation and alteration of natural flow regimes in streams. o Reduced erosion and mudslide risks. o Reduced likelihood of development in hazardous areas with attendant public safety benefits. o Reduced conditions conducive to propagation of vectors and other noxious plant and animal species. o Retention or debris basins may become a health hazard if water stagnates and vector problems result or a safety hazard (drowning). <p><u>Sense of Community</u></p> <ul style="list-style-type: none"> o No impacts. <p><u>Equity</u></p> <ul style="list-style-type: none"> o Indirect impacts on special population groups depends on financing mechanism(s) proposed as well as actual impacts on housing supply and costs. <p><u>Urban Patterns</u></p> <ul style="list-style-type: none"> o Erosion control requirements should not in and of themselves affect urban patterns.
<div>Control Erosion/Improve Agricultural Practices</div>			

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
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Impacts same as noted for Control Dumping.

Impacts same as noted for Control Dumping.

Impacts same as noted for Control Dumping.

Impacts same as noted for Control Dumping.

Divert Runoff From Contaminated Areas



See Impact Assessment for Policy 5 of the Water Quality Management Plan (Provide Facilities Needed for Municipal Sewerage Service and Water Quality Protection

Treat and Store Runoff



Impacts same as noted for Control Dumping & Control Erosion.

Impacts same as noted for Control Dumping & Control Erosion.

Impacts same as noted for Control Dumping & Control Erosion

Impacts same as noted for Control Dumping & Control Erosion

Control Land Use Along Creeks



Impacts same as noted for Control Dumping.

Impacts same as noted for Control Dumping.

Impacts same as noted for Control Dumping.

Impacts same as noted for Control Dumping.

Other Measures



POLICY 8. ESTABLISH A PROGRAM OF SURFACE RUNOFF CONTROLS THAT EMPHASIZE
LOW COST MEASURES TO REDUCE POLLUTANT LOAD FROM THIS SOURCE

RECOMMENDATIONS	GENERAL DESCRIPTION	RESPONSIBLE AGENCY (OR AGENCIES)	SCHEDULE FOR ACTION	LEGAL AUTHORITY	TOTAL COST/YEAR OF RECOMMENDED ACTION	PORTION OF TOTAL COST/YR. DIRECTLY ATTRIBUTABLE TO THIS PLAN	FINANCING MECHANISM	MEASURES TO ENSURE IMPLEMENTATION
8.6 Identify critical watershed problem areas	Appendix B lists critical watersheds with high erosion potential or water quality impacts	ABAG, Bay Area Council of Resource Conservation Districts	June 1980	FWPCA Sec. 208 (J)	\$40,000 in 1980	\$40,000	Federal 208 Grant	Voluntary
8.7 Adopt watershed protection plans for critical areas	Watershed plans were developed in 1979-80 for Calabazas Creek, Cull Canyon, Nicasio Reservoir, San Mateo Lagoon and Pescadero Creek. Others may be developed in the future.	Counties and/or cities with appropriate jurisdiction	June 1980 and as needed	Local government enabling legislation	Undetermined	Undetermined	Local funds and fees	Voluntary

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
<u>Air Quality</u> o No impacts <u>Water Quality</u> o Recognition of problem areas is the first step towards developing and implementing a watershed Protection Plan <u>Physical Resources</u> o No impacts <u>Energy</u> o No impacts <u>Amenities</u> o No impacts	<u>Financial</u> Direct Public Cost of Implementation: o No impact Fiscal Effects on Local Governments: o Planning and measures to control or protect critical watershed problem areas may become eligible for federal funding under 208 water quality planning <u>Institutional</u> o Local governments can include consideration of critical watershed problem areas in planning	<u>Production of Goods and Services</u> o No impact <u>Income and Investment</u> o No impact <u>Consumer Expenditures</u> o No impact	<u>Housing Supply</u> o No impact <u>Physical Mobility</u> o No impact <u>Health and Safety</u> o No impact <u>Sense of Community</u> o No impact <u>Urban Patterns</u> o No impact <u>Equity</u> o No impact
Impacts same as noted for Control Erosion Control Dumping	Impacts same as noted for Control Erosion Control Dumping	Impacts same as noted for Control Erosion Control Dumping	Impact same as noted for Control Erosion Control Dumping

POLICY 12. MONITOR EFFECTIVENESS OF EXISTING ARRANGEMENTS FOR PREVENTION AND DEALING WITH OIL AND CHEMICAL SPILLS IN THE BAY AREA

RECOMMENDATIONS	GENERAL DESCRIPTION	RESPONSIBLE AGENCY (OR AGENCIES)	SCHEDULE FOR ACTION	LEGAL AUTHORITY	TOTAL COST/YEAR OF RECOMMENDED ACTION	PORTION OF TOTAL COST/YR. DIRECTLY ATTRIBUTABLE TO THIS PLAN	FINANCING MECHANISM	MEASURES TO ENSURE IMPLEMENTATION
12.8 Amend county spill plans to include containment of all non-hazardous chemical spills exceeding 100 gallons.	Most non-hazardous chemicals can be significant water pollutants and destructive to aquatic life. This action is directed at the common practice of washing chemical spills into the nearest storm sewer and thus nearby stream and lake.	County Offices of Emergency Services, fire departments with independent plans	By June 1981	Local government enabling legislation	Undetermined	100%	Local funds	Voluntary
12.9 Prepare and implement a regionally coordinated chemical spill response plan	There is great variety and inconsistency among local spill plans and capabilities. A task force of principal spill respondents would develop a regionally coordinated plan and endeavor to correct deficiencies.	ABAG, County and State OES, fire districts, county health agencies, police services, RWQCB, Fish & Game, Caltrans, manufacturers, transporters	Commence in 1980-81	Local government enabling legislation	Undetermined	100%	Federal and State grants; local funds	Voluntary

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
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The following impacts are derived from the impact analysis of Policy 12 in the Environmental Management Plan.

Air Quality

- o No impacts.

Water Quality

- o Reduced incidence of water pollution from non-hazardous materials spills.
- o Reduced incidences of impairment of beneficial uses of Bay and other surface waters.

Physical Resources

- o Reduced incidence of spills and improved spill clean-up would protect:

- aquatic community
- flora and fauna-wildlife habitats (marshes, salt ponds)
- water-related recreation use and potential

- o Spill clean-up would increase solid waste volume to landfill or composting facilities.

Energy

- o No impacts.

Amenities

- o Indirect visual amenity benefits associated with reduced incidence of spills and improved containment and disposal.

Financial

Direct Public Costs of Implementation

- o See below.

Fiscal Effects on Local Governments

- o Local spills prevention and clean-up programs may require commitment of local fiscal resources.

Institutional

- o Direct impacts on intergovernmental responsibility and coordination - requires cooperation of numerous Federal, State, regional and local agencies.

Production of Goods and Services

- o Employment- Public and private sector job opportunities may result from improved enforcement and new requirements.

Income and Investment

- o New requirements and enforcement of spill prevention programs may require private capital investments.

- o Profits of firms bearing costs of new requirements or improved enforcement should not be affected, assuming costs will be passed on to the consumer.

Consumer Expenditures

- o Increased prices of goods and services may result when costs incurred to comply with spill prevention programs are passed on to consumer.

Housing Supply

- o No impact.

Physical Mobility

- o No impact.

Health and Safety

- o Reduced potential for public exposure to health and safety risks.

Sense of Community

- o No impact.

Equity

- o No impact.

Urban Patterns

- o No impact.

Impacts same as noted for Action 12.8

Financial

Direct Public Costs of Implementation

- o See below.

Fiscal Effects on Local Governments

- o Local spills prevention and cleanup programs may require commitment of local fiscal resources.
- o Coordination of agency responses to chemical spills and sharing of facilities and equipment may lead to local cost savings.

Institutional

- o Impacts same as noted for Action 12.8.

Impacts same as noted for Action 12.8.

Impacts same as noted for Action 12.8.

V: ENVIRONMENTAL IMPACTS OF THE WATER QUALITY MANAGEMENT PLAN (INCLUDING DRAFT ENVIRONMENTAL IMPACT REPORT REVISIONS)

The complete Environmental Impact Report on the Environmental Management Plan is presented in EMP Volume II, Chapter I.

This section contains a full copy of the WQMP portion of the adopted EIR. Proposed 1980 additions and changes to the EIR are included in the text and highlighted by brackets. Deletions are noted by strike-outs.

DESCRIPTION OF THE PROPOSED PROJECT

Twelve policies are proposed to improve water quality and meet applicable Federal and State standards and objectives. Each policy includes a series of actions to carry out the policies. A complete description of the recommendations appears in Chapter III of Volume I of the EMP and its Plan Recommendation tables. ~~The twelve policies do not differ appreciably from those of the Draft EMP. Changes made include policy clarification, re-orienting of tasks and responsible agencies for implementation. None of the changes appreciably affect the significant environmental effects identified in the Draft EIR.~~ The twelve policies recommended are:

- Policy 1 - Improve understanding of Bay-Delta estuarine system and the fate and effects of pollutants entering it
- Policy 2 - Establish continuing planning process for water quality management
- Policy 3 - Facilitate the re-establishment of recreational and commercial shellfish harvesting in the bay as allowed by water quality
- Policy 4 - Ensure that water pollution facilities or measures effectively protect water quality
- Policy 5 - Provide facilities needed for municipal sewerage service and water quality protection
- Policy 6 - Encourage consolidation of treatment facilities and discharge of wastewater to well-mixed receiving waters where economically justified and environmentally desirable
- Policy 7 - Accelerate programs toward reclamation and reuse of wastewaters

- Policy 8 - Establish a program of surface runoff controls that emphasize low cost measures to reduce the pollutant load
- Policy 9 - Provide facilities needed for industrial wastewater treatment and disposal and water quality protection
- Policy 10 - Reduce sewage pollution from vessels, including houseboats, in the Bay-Delta system.
- Policy 11 - Improve wastewater disposal practices in unsewered areas
- Policy 12 - Monitor effectiveness of existing arrangements for preventing and dealing with oil and chemical spills in Bay Area

THE SIGNIFICANT ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT

The Plan Recommendation tables in Chapter III of Volume I of the EMP contain summary statements about the potential environmental, institutional/financial, economic and social impacts of the actions recommended to carry out the recommended policies for water quality management. Section G titled "Benefits and Costs of Plan Recommendations" in Chapter III summarizes the significant impacts.

As required by NEPA and CEQA, this discussion assesses the significant environmental effects of the Water Quality Management Plan. The significant environmental effects are:

- o improved water quality
- o fish, shellfish, flora and fauna, recreation and visual amenity benefits
- o increased production of sewage solids

For the purposes of the EIR, the policies of the Water Quality Management Plan are classified into two types of recommendations:

- o management planning recommendations
- o facility construction recommendations

The first type, management planning recommendations, includes research, monitoring, criteria and standard development, permit issuance, operation and maintenance activities, public education and information, and continuing integrated water quality management planning. Recommendations of this type are: Policy 1, Policy 2, Policy 4, Action 5.2, [5.3, 5.4, and 5.5], Policy 8, Action 9.2 and 9.4, Action 10.1, 10.2, 10.3 and 10.6, Policy 11 (all actions except 11.4) and Policy 12.

~~The significant environmental effects of these recommendations are improvements in water quality expected to result from improved information and its use in decision-making by agencies involved in protection of the quality of surface and groundwater supplies in the region.~~

The significant environmental effects of these recommendations are water quality improvements derived from a higher degree of environmental protection and pollution abatement. Expansion of the information base and development of appropriate tools and techniques through the planning process enable decision-makers to make sound judgments toward the protection of surface and groundwaters in the region.

Indirect water quality benefits should also result from improvements in the efficiency and effectiveness of water quality management programs after consolidation and coordination of activities currently dispersed among a large number of agencies. Other significant environmental effects of management planning recommendations include: the benefits for other aspects of the natural/physical environment associated with the water quality benefits; and, increased knowledge about the environmental responses to pollutants. The affected aspects of the natural/physical environment encompass: fish, shellfish and other aquatic organisms, flora and fauna (species and habitats), recreation potential and use and visual amenities.

The second type of recommendation would ultimately result in construction of treatment facilities (e.g., municipal and industrial treatment facilities, marina pumpout facilities). Recommendations of this type are Action 5.1, Policy 6, Policy 7, Action 9.1 and 9.3, Action 10.4 and 10.5, and Action 11.4.

These recommendations will have significant environmental effects as they are carried out by local governments and the private sector. Federal and State standards and objectives govern the treatment levels and actions required prior to effluent discharge. Those requirements are based on protection of public health and the natural/physical environment. The major significant environmental effect is therefore the water quality improvements associated with implementing these recommendations. Improved water quality benefits other aspects of the natural/physical environment such as fish, shellfish and other aquatic organisms, flora and fauna (species and habitats), recreation potential and use, and visual amenities.

Another significant environmental effect is the production of sewage solids (sludge) associated with treatment of municipal and industrial wastes. Increased volumes of sludge will result from upgrading and expanding existing treatment facilities, providing new treatment facilities and reclamation activities.

Construction of treatment facilities has other tangible effects. Table 1 lists the EIR/EIS documents prepared (or in preparation) by EPA for the major wastewater management areas of the region. The 20-year Project List (~~Appendix J of Chapter III of Volume I of the EMP~~) **[as revised in General Assembly Resolution 5-79, adopted 11/79]** includes many proposed facilities already discussed in those environmental documents.

Proposed projects involve upgrading treatment levels, additions or expansions or reclamation studies at the existing facilities. The EIR/EIS documents listed discuss the environmental effects of construction of the sewerage treatment facility per se. The reader is referred to those environmental documents for the impacts of the construction of the sewerage treatment facilities recommended in the facilities plans prepared for those management areas. As the actions recommended are carried out by local governments and private industry and become site specific project proposals, those agencies will become Lead Agencies under the definitions of CEQA. As Federal grantees, they would be subject to NEPA requirements. The site specific environmental effects of the proposed projects would then be assessed as required by Federal and State laws.

The Water Quality Control Plan Report for San Francisco Bay Basin (Basin Plan) prepared in 1975 by the State Water Resources Control Board and the Regional Water Quality Control Board of the San Francisco Bay Region recommended a comprehensive water quality management plan for the San Francisco Bay Basin. Volume 2 of the Basin Plan contains an assessment of recommended facilities, control measures and alternatives. ~~That information is incorporated by reference in this assessment effort. As the objectives of policies recommended for water quality management are premised on water quality standards and objectives, the recommendations of this plan build on and supplement the information and recommendations of the Basin Plan. As such, many of the environmental effects identified in the Basin Plan are pertinent to an understanding of the water quality effects of recommendations in the EMP.~~

Action 5.3 calls for the consolidation of the Basin Plan project list with the 20-year Project List in the EMP. The Water Quality Management Plan objectives are based on water quality standards and objectives, thus supplementing and expanding the Basin Plan. In a reciprocal manner, many of the environmental effects identified in the Basin Plan relate directly to the water quality effects of the EMP recommendations. Project List consolidation brings the benefits of coordinated regional facilities planning in agreement with regional population projections and eliminates unnecessary duplication of effort and timely delays for list approval.

TABLE 1

ENVIRONMENTAL IMPACT STATEMENTS PREPARED BY THE
ENVIRONMENTAL PROTECTION AGENCY

Bay Area Sludge Study Project #1225 (pending)

Central Contra Costa County Wastewater Management Program, State 5B Enlargements Water Pollution Control and Resource Recovery Facilities, prepared with Central Contra Costa Sanitary District Draft Only August, 1976, Project #1000

East Bay Dischargers Authority Water Quality Management Program Phase I Project Draft December 1975 Final July, 1976 Project #0868

Eastern Contra Costa County Wastewater Management Plan Acute Impact of Discharge at Alternative Outfall Location, prepared with East Central Contra Costa County Agency Wastewater Management Agency, with technical assistance, Arthur D. Little, Thomas Reid Draft April, 1976, Final June, 1976, Project #10002

Eastern Marin-Southern Sonoma Wastewater Management Plan prepared with Novato Sanitary District on behalf of Eastern Marin and Southern Sonoma Wastewater Agencies with technical assistance by J.B. Gilbert and Associates, November 1977, Project #1058

Livermore Amador Valley Wastewater Management Program prepared with Livermore Amador Valley Water Management Agency, with technical assistance by URS Research, Co., John Carollo Engineers, Draft January, 1976, Final August 1976, Project #1031

San Francisco Wastewater Master Plan prepared with City and County of San Francisco Draft February, 1974 Final May 1974, Project #0740

South Bay Dischargers Project #1135 (pending)

Western Contra Costa County Wastewater Management Program plus Amendment to the final EIR/EIS West County Agency Wastewater Management Program Wet Weather Flow Treatment and Regional Sludge Handling and Plant Rehabilitation Draft, February, 1976 Final January, 1977 Project #1154

Table 1 has been completely revised; see following page.

TABLE 1

ENVIRONMENTAL IMPACT STATEMENTS PREPARED BY THE
ENVIRONMENTAL PROTECTION AGENCY*

San Francisco Bay Region, Wastewater Solids Study, Final Report, Volumes I, II, III - June 1979, Volume IV - April 1980, Volume V (summer) 1980, Project #1225.

Central Contra Costa County Wastewater Management Program, State 5B Enlargements Water Pollution Control and Resource Recovery Facilities, prepared with Central Contra Costa Sanitary District, Draft - August 1976, no Final EIS prepared, Project #1000.

East Bay Dischargers Authority Water Quality Management Program Phase I Project, Draft - December 1975, Final - July 1976, Project #0868.

Eastern Contra Costa County Wastewater Management Plan Acute Impact of Discharge at Alternative Outfall Location, prepared with East Central Contra Costa County Agency Wastewater Management Agency, with technical assistance, Arthur D. Little and Thomas Reid, Draft - April 1976, Final - June 1976, Project #10002.

Eastern Marin-Southern Sonoma Wastewater Management Plan prepared with Novato Sanitary District on behalf of Eastern Marin and Southern Sonoma Wastewater Agencies with technical assistance by J.B. Gilbert and Associates, Draft - November 1977, Final - June 1979, Project #1058.

Livermore Amador Valley Wastewater Management Program prepared with Livermore Amador Valley Water Management Agency, with technical assistance by URS Research, Co. and John Corollo Engineers, Draft - January 1976, Final - August 1976, Project #1031.

San Francisco Wastewater Master Plan prepared with City and County of San Francisco, Draft - February 1974, Final - May 1974, Project #0740.

South Bay Dischargers Authority Treated Wastewater Disposal Program, Draft - November 1978, Final - April 1980, Project #1135.

Western Contra Costa County Wastewater Management Program plus Amendment to the final EIR/EIS West County Agency Wastewater Management Program Wet Weather Flow Treatment and Regional Sludge Handling and Plant Rehabilitation, Draft - February 1976, Final - January 1977, Project #1154.

*Revised status as of April 1980.

The Construction Grants for Wastewater Treatment Works Program and the California Clean Water Grants Program fund construction of municipal wastewater treatment facilities. Proposed projects that subsequently qualify for Federal funding move through a three step process. The Step 1 grant funds the preparation of a facilities plan. Federal regulations require all grantees to prepare an environmental assessment (in California an EIR may be prepared and U.S. Environmental Protection Agency would then prepare an EIR/EIS or Negative Declaration) as a part of the facilities planning process. Step 2 grants fund detailed design and specifications while Step 3 grants fund the actual facility construction. EPA files an EIR/EIS or Negative Declaration prior to award of a Step 3 grant.

ANY SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROPOSAL IS IMPLEMENTED AND MITIGATION MEASURES PROPOSED TO MINIMIZE THE SIGNIFICANT EFFECTS

Construction Effects

Construction of sewerage treatment facilities may have significant (adverse) environmental effects of a short-term, localized nature. These include the dust, surface runoff, noise and energy use related effects associated with construction activities. Other effects may include the alteration of land (and in some cases changes in land use) and visual impacts associated with providing new or expanded facilities. These effects can be minimized by noise and dust abatement measures, careful engineering design, and siting measures. The recommendations for surface runoff control measures at construction sites, ~~(Control Erosion)~~ recommended in **[Action 8.4 and]** the county surface runoff control plans would ~~minimize any~~ **[reduce]** construction-related adverse effects of surface runoff.

Sewage Solids Generation

The major potentially significant (adverse) environmental effect of the sewerage treatment facilities listed in the Water Quality Management Plan (municipal and industrial) is the increase in sewage solids volumes. Upgrading primary treatment plants to secondary treatment results in a two-fold increase in the solids produced. Expansion of facility capacity and reclamation of wastewater also results in an increase in solids produced. It is estimated that ~~by~~ **[in]** 1980 the wastewater treatment agencies in the region will generate about ~~2500~~ **[10,800]** cubic yards per day of wet (80% moisture content) sludge cake. That amount would cover a football field ~~about 2' high~~ **[with about a 7-foot layer]** every day.

The sludge management system includes sludge ~~process~~, **[processing]** transport and disposal or ~~use~~ **[reuse]**. With the exception of thermal and combustion processes, the environmental effects of processing are not normally significant. The potential for significant environmental effects is associated with the transport and disposal/~~use~~ **[reuse]** components of the system.

The significant (adverse) environmental effects of those components of the sludge management system include: the potential for water quality impacts (e.g., surface runoff, groundwater contamination associated with landfilling and land application), air quality impacts (e.g., odor, transport truck emissions), and physical resource impacts (e.g., the effects on the supply and use of land associated with landfill disposal and land application) and energy impacts (truck and pipeline transport).

The San Francisco Bay Region Wastewater Solids Study ~~is developing~~ **[has developed]** a regional plan for long-term wastewater solids management and detailed facilities plans for the four largest wastewater treatment agencies (City and County of San Francisco, City of San Jose, Central Contra Costa Sanitary District and East Bay Municipal Utility District). This Regional Plan is a component of the solid waste recommendations of the Draft EMP.

The ~~Draft~~ **[Final]** Project Report/EIR/EIS for sludge management for the four major facilities ~~will be written and processed in the summer of~~ **[was completed in 1979 and 1980.]** The potential adverse environmental impacts associated with the increased volumes of sewage solids resulting from wastewater treatment recommendations will therefore be mitigated as part of the sewage solids planning process. The facilities plans for the four largest wastewater treatment agencies will be based on the Regional Wastewater Solids Plan recommendations for sludge management, and will include an impact assessment of the site specific effects of sludge management activities at each of the facilities.

All other treatment facility expansions and reclamation studies will address the environmental effects of increases in sludge volumes in the facilities planning process. Sludge management proposals will have to be consistent with the EMP. Environmental documents will be prepared prior to grant awards for design and construction.

Secondary Impacts

Plans to construct sewerage treatment facilities often face opposition on the basis of their growth inducing characteristics and the adverse environmental impacts associated with the induced growth. The major environmental issue associated with induced growth is the deterioration of air quality. ~~The facilities included on the 20-year Project List (Section J of Chapter III of Volume I of the EMP) [General Assembly Resolution 5-79 (adopted November 1979)] and the actions recommended for on-site disposal management would accommodate growth planned for in the region. The 20-year Project List would provide needed facilities to accommodate a population of up to 6.1 million people in the year 2000 in a compact development pattern. The list was prepared using the Series 3 projections, high population estimates. The higher of the two projections can be accommodated by the projects shown on the list for the year 2000. The list is contained as Section J of Chapter III, Volume I, [General Assembly Resolution 5-7 (adopted November 1979)].~~

The facilities included on the 20-year Project List and the actions recommended for on-site disposal management would accommodate planned regional growth. This growth is consistent with and planned for in the Bay Area Air Quality Plan prepared by ABAG in 1979. The 20-year Project List adopted in 1978 (EMP Volume I, Chapter III: Section J) was revised by General Assembly Resolution 5-79 which was adopted in November 1979 and amended by the Executive Board in December 1979. The 1979 update of the 20-year Project List, based on "ABAG Projections 79", would provide facilities to accommodate a population of up to 6.1 million people in the year 2000. This population projection corresponds closely to the "Series 3 projections, compact development pattern-high population estimates" that was the basis of the 20-year Project List adopted in 1978.

The project list will be updated annually. That will allow further examination of the need for facility expansions. It will also allow the incorporation of future growth trends into identification of needed facilities.

Originally, the compact development recommendations of the air quality plan were used to develop a project list. Future Federal and State financial assistance for construction of facilities will only be available to projects on the list. It was felt that compact growth would reduce the potential for deterioration of air quality resulting from induced growth.

The land use management portion of the AQMP was deleted from the EMP. The current 20-year Project List will accommodate the projected population of the region in the year 2000. The potential for a specific project to induce growth beyond that projected to occur in an area can only be assessed during the planning and assessment of each specific project. Adverse environmental effects of the accommodated development could be mitigated by actions of the affected local governments (e.g., zoning, capital improvements budgets) and by the actions of regional, State and Federal agencies responsible for meeting air and water quality standards and objectives.

The collection systems included on the 20-year Project List will require further assessment to determine their growth-inducing potential and other impacts of providing central sewerage facilities in areas that are currently unsewered. Under current regulations, "sewage collection systems are only eligible for Federal assistance through the Construction Grants for Wastewater Treatment Works Program in "communities in existence" on October 18, 1972 and if there is sufficient existing or planned capacity to adequately treat such collected sewage and the bulk of the flow design capacity through the sewer system will be wastewaters originating from the community in existence on October 18, 1972.* Replacement or major rehabilitation of

*Section 35.92513 Final Construction Grants Regulations 40CFR, Part 35, Subpart E.

existing systems (based on a sewer system evaluation) "must be cost effective and result in a sewer system design capacity equivalent only to that of the existing system plus a reasonable amount for future growth." The collection systems will be subject to close scrutiny in the continuing environmental management planning process and annual update of the 20-year Project List.

ALTERNATIVES TO THE PROPOSED ACTION

The No Action Alternative to the Water Quality Management Plan

The major alternative to the Water Quality Management Plan in its entirety is one of no action. The impacts identified in Plan Recommendation tables in Chapter III of the EMP were measured against that alternative. The no action alternative was not felt to be feasible for several reasons. Section 208 of the Federal Water Pollution Control Act Amendments of 1972 requires "gubernatorial designation of areas with substantial water quality problems and a single representative organization capable of developing effective areawide waste treatment management plans for such area"*** and within "a year of designation that a continuing areawide waste treatment management planning process consistent with Section 201 of the Act"**** be in operation. As the designated organization for the San Francisco Bay Region, ABAG is obligated to establish a process and "produce an areawide waste treatment management plan not later than two years after the planning process is in operation."*****

The No Action Alternative for Municipal Facilities and Industrial Discharges

The Basin Plan referenced earlier and facilities plans prepared for subareas of the region and individual treatment works have addressed, for the most part, only point sources of pollution ~~and generally [from]~~ municipal facilities. Section 208(b)(A)-(D) requires the areawide waste treatment management plan to identify "treatment works necessary to meet anticipated municipal and industrial waste treatment needs of the area over a twenty-year period." The no-action alternative to the municipal and industrial waste treatment management recommendations (Policy 5 and Policy 9) is not feasible on two counts. First, such ~~recommendations~~ **[facilities]** are required by ~~law [the FWPCA.]~~ Existing municipal and industrial discharges must meet applicable water quality standards through treatment levels for effluent discharge required by the National Pollutant Discharge Elimination System permits issued by the Regional Water Quality Control Board. Second, ~~facility~~ **[facilities]** recommendations for the twenty-year planning period are also required by the ~~Act [FWPCA].~~ ~~No action would not provide for growth and would result in violations of water quality standards by existing point sources as their capacities are exceeded.~~

**Section 208(a)(2)

***Section 208(b)(1)

****Section 208(b)(1)

No action would result in the continuation of existing facilities which are inadequate to handle future population growth. As waste flows from new growth exceed the capacity of existing treatment works, sewage would be inadequately treated and subsequent point source discharges would lead to violations in water quality standards.

The No Action Alternative for Miscellaneous Sources

~~Designation of an area as having substantial water quality problems is generally based on a situation where waters in the area would not meet applicable water quality standards even with high levels of treatment of wastes at point sources of pollution. This situation generally results from pollutants entering those waters from non-point pollution sources (e.g., vessel wastes, septic systems and surface runoff).~~

The designation of a substantial water quality problem area generally occurs where waters in the area would not meet applicable water quality standards even with high treatment levels at point sources of pollution. This situation generally results from significant contributions of non-point pollution sources, (e.g., vessel wastes, septic systems and surface runoff).

The Basin Plan discussed several non-point sources of pollution that contributed to designation of the Bay Area as an area with substantial water quality problems. Those included urban runoff, construction related runoff, agricultural runoff, salt intrusion and control, oil spills, dredged spoil, solid waste disposal and floating debris. The Basin Plan discussed general approaches to manage these sources of pollutant loadings to the Bay system.

Section C ("Water Pollution Problems and Their Causes") of Chapter III in Volume I of the EMP describes the nature and seriousness of existing and future water quality problems in the San Francisco Bay system. Included in that description are miscellaneous sources of pollution (non-point sources). The major sources (surface runoff, vessel wastes, on-site disposal systems and oil and chemical spills are addressed by recommended management actions (Policy 8, Policy 10, 11 and 12, respectively). The no action alternatives to non-point source recommendations is not feasible. Section 208(b)(2)(F)-(K) requires these sources to be addressed. No action with respect to these miscellaneous sources would result in the worsening of water quality problems associated with such sources. This EMP goes beyond the Basin Plan and recommends specific actions to manage non-point sources of pollution.

Institutional Alternatives to Implement the Water Quality Management Plan

An alternative that could have been recommended throughout the Water Quality Management Plan was the creation of new agencies or a "super" regulatory agency to implement the recommended actions. Section 208(c)(2)(A) requires that there be adequate authority "to carry out appropriate portions of an areawide waste management plan..." The regulatory program developed must indicate that agency(s) with regulatory responsibility possess the statutory authority, or have initiated legislative proposals to obtain the authority to carry out the activity and use the forms of regulation called for in the plan (Section 208(b)(2)(C)). Thus, the option was feasible.

The EMTF Plan Implementation Committee directed ABAG staff with regard to institutional arrangements for plan implementation. Chapter VIII of Volume I of the EMP describes the "guiding principles" developed by that committee. The committee (and EMTF endorsement for the draft plan) indicated that successful initial implementation of the plan required the use of existing agencies with implementing authorities where those agencies could reasonably be presumed able to effectively implement proposed actions. The implementing authorities for plan recommendations are distributed among many agencies in the region. Past efforts have shown that cooperative agreements (e.g., Joint Powers Authorities, Memoranda of Understanding) are effective means of implementation. Those guiding principles ruled out changes in institutional structures such as creation of new agencies or a "super" regulatory agency.

In addition to the no action alternative to the Water Quality Management Plan in its entirety and to the three elements (municipal facilities, miscellaneous sources and industrial discharges) discussed, alternatives to specific policies and actions were also considered.

Alternatives to Policy 1

One alternative considered for Policy 1 (Improve understanding of Bay-Delta estuarine system and the fate and effects of pollutants entering it) and its implementing actions was no action or continuation of the status quo. Numerous agencies (Regional Water Quality Control Board, State and County Health Departments, Federal agencies, local agencies, special districts, private industry) currently conduct research and monitoring programs. However, due to limited resources, the programs are not as extensive as would be desirable. One major problem associated with the current data gathering effort is that of information transfer. The data that does exist is not well circulated or easily accessible in a uniform format. Because much of the water quality management recommendations call for new monitoring and research, the no action alternative did not seem feasible. An independent, centralized research and monitoring program was recommended to obviate long delays in assembling an adequate data base for ongoing water quality management planning and to improve the reliability and accessibility of the data generated. Action by the EMTF and Executive Board changed the context in which research and monitoring would proceed

and some responsible agency designations. Rather than an independent, centralized program, an Advisory Council with broad membership is proposed. The impacts/significant environmental effects, however, remain the same.

Alternatives to Policy 2

The no action alternative for Policy 2 (Establish a continuing planning process for water quality management) is not feasible. Section 208(b)(1) and (3) requires the establishment of such a process and annual updating of the areawide waste treatment management plan.

Alternatives to Policy 3

The alternative considered for Policy 3 (Facilitate re-establishment of recreational and commercial shellfish harvesting in the bay as allowed by water quality) was no action or continuation of the status quo. Beds of mussels, oysters and clams are widespread in the bay system. However, they remain an untapped resource due in large part to the presence of pathogenic bacteria and viruses in overlying waters. Continuation of the status quo would not change the current situation. The shellfish resource would remain untapped and inaccessible to the Bay Area population. As the discharge of substances that contaminate shellfish are prevented or reduced, the potential to realize the benefits of the resource is greatly improved. No action does not appear reasonable in light of the actions and investments taken to improve water quality. There are no viable alternative approaches to re-establishing shellfish harvesting. Beds closed to recreational and commercial harvesting are closed due to the potential health hazards of harvesting contaminated shellfish. Before the beds could be open to recreational harvesting, surveys by the State Department of Health would be mandatory. Commercial harvesting requires better information on the effectiveness of depuration and relaying as methods of ridding shellfish of contaminants. The State Health Department is the agency with expertise and authority to initiate necessary actions (in conjunction with the Regional Water Quality Control Board, State Department of Fish and the County Health Departments).

Alternatives to Policy 4

The alternative to Policy 4 (Ensure that water pollution facilities or measures effectively protect water quality) was no action or continuation of the status quo. The municipal and industrial treatment facilities construction program has involved substantial amounts of capital investment. As the program of construction tapers off, it will be necessary to concentrate efforts on the operational aspects of those facilities. The monitoring effort and annual report would provide data on aspects of plant operation needing attention. Billions of dollars of capital investment will be poorly spent if plants are not properly operated. The no action alternative would not ensure that capital investments in facility construction would return the water quality benefits expected from the construction.

Alternatives to Policy 5, 6, and Policy 9

An alternative considered for Policy 5 (Provide facilities needed for municipal sewerage services and water quality protection) Policy 6 (Encourage consolidation of treatment facilities and discharge of wastewater to well-mixed receiving waters where economically feasible and environmentally desirable), and Policy 9 (Provide facilities needed for industrial wastewater treatment and disposal and water quality protection) was to require toxicant removal prior to discharge of effluents to municipal systems or directly to the bay system. The effects of substances such as toxicants can upset treatment process operation and damage aquatic life in the receiving waters. Detection and source control of toxic materials discharged to subregional sewer systems is a difficult and expensive problem. Reduction of toxicant emissions at the source requires the cooperation of industrial operators with processes or control procedures that may contribute these substances to the sewer system or receiving waters. Local and subregional waste ordinances and National Pollutant Discharge Elimination System (NPDES) permits currently require that certain actions be taken to treat toxic substances prior to discharge. Removal of toxic substances from waste discharges (and storm runoff) is difficult and expensive. Despite data from fish bioassay, effluent chemical analysis, and receiving water and bay monitoring, conclusive evidence is lacking regarding the harm of such discharges to the biological system of the bay. In light of this situation, it was not judged feasible to recommend toxicant removal at all treatment facilities. Instead, it is recommended that the current efforts continue and a reduction in the discharge of toxic substances be accomplished where this can be done easily and relatively inexpensively. At the same time, research would be undertaken to determine whether harmful effects are occurring and if further removals are justified.

An alternative to Action 5.4 and 5.5 (Evaluate benefits and incorporate recreational facilities into water quality protection projects where economically justified or feasible) would be to recommend that approval and funding of water quality protection projects be contingent upon providing recreational benefits to some value commensurate to the service population. An even narrower viewpoint would be the recommendation that a specified percentage of the capital cost or treated wastewater effluent for any facility be used for the creation or enhancement of recreational facilities.

Consideration of recreational benefits with water pollution control projects is currently required under the FWPCA Section 208(b)(2)(A). However, mandatory incorporation of recreational benefits into projects is not specifically required by the law and thus could not be enforced. In addition, the Clean Water Grant Program, set up by the FWPCA, specifies that facilities for uses other than waste treatment, conveyance or disposal are not grant-eligible. Thus, these alternatives could not be effectively enforced or financed through Federal programs. Implementation of these alternatives by local jurisdictions in an arbitrary fashion would probably also be politically and financially infeasible.

Alternatives to Policy 7

Alternatives to Wastewater Reclamation and Reuse are described as part of the Water Supply Management Plan alternatives.

Alternatives to Policy 8

The alternatives to the surface runoff management recommendations (Policy 8 - Establish a program of surface runoff controls that emphasize low cost measures to reduce the pollutant load from this source) were considered by each of the counties in the process of developing the individual County Surface Runoff Control Plans. The criteria used to eliminate alternatives or control measures is described in some detail in each county plan. The County Surface Runoff Control Plans are contained in Appendix C of the EMP. Generally speaking, the alternative to an emphasis on low cost measures for reducing the pollutant load from the surface runoff would have been to recommend new programs or structural approaches. Alternatives of that nature were rejected for the most part because the concept of Best Management Practice stressed by EPA involves an initial focus on better housekeeping methods and a reorientation of current programs to include water quality benefits as an additional criteria. The effectiveness of this approach will be studied and specific demonstration projects carried out to gather further information about the effectiveness of controls. Alternative approaches will be investigated in the continuing planning process.

An alternative to Action 8.3 (Adopt regionally consistent definitions of Best Management Practices) would be the recommendation that each county develop its own specifications manual for surface runoff control measures. This would result not only in multiple duplications of effort but could produce conflicting or unmatching definitions for similar control measures from county to county. Water quality protection would not be well-served when a control measure is strictly defined and enforced in one jurisdiction and poorly defined in a neighboring jurisdiction only several hundred feet away within the same watershed.

The alternative to Actions 8.4 through 8.8 is no action or continuation of present planning activities. The surface runoff program has identified numerous weaknesses within the existing county system of non-point source pollution control, such as weak ordinances for erosion control and/or inadequate enforcement and lack of or inadequate provisions for the protection of critical watershed areas. Without concerted action to strengthen protection efforts, non-point source pollution will increase and the Bay system will continue to have substantial water quality problems.

Alternatives Policy 10

Several alternatives were considered for the vessel waste management recommendations (Policy 10 - Reduce sewage pollution from vessels, including houseboats, in the bay-delta system). An alternative considered for Action 10.1 (Improve monitoring and documentation of vessel waste pollution) was to have responsibility for monitoring rest with marina owners who would report results to the Regional Water Quality Control Board (RWQCB). That alternative, upon further investigation, was judged not feasible. The authority that would have been used was the RWQCB waste discharge permit authority. However, legally and technically the marina is not the point of discharge. The boats in the marina are the discharge "points". The original recommendation was for the independent research and monitoring program to conduct the monitoring. After changes in Policy 1, this action was also changed so that the Regional Water Quality Control Board and County Health Departments will be responsible for periodic sampling and documentation of the effectiveness of current vessel waste pollution control programs. These activities are important to Policy 3 so that progress can be made in reopening shellfish beds for recreational and commercial harvesting.

An alternative to Action 10.2 (Conduct public hearing(s) and establish discharge prohibition as appropriate) would have been to recommend that the entire bay be declared a no discharge zone. Large portions of the bay are not as sensitive to waste discharges as specific beneficial use areas such as shellfish beds and water contact recreation areas. Pending analysis of the water quality effects of new no discharge zones in the recommended areas, it did not seem reasonable to require potentially unnecessary and extremely costly actions by point source dischargers to eliminate all discharges to the bay. Results of Action 10.1 will be used to determine discharge prohibition needs in environmentally sensitive areas.

An alternative to Action 10.3 (Inform boating public or marine sanitation device program) was to recommend a Bay Area specific marine sanitation device program. That program, as initially conceived, would have involved requiring all boats to install Bay Area approved marine sanitation devices (MSD). Operated through an inspection program administered by the Department of Motor Vehicles, DMV would require the boat owner to show a certificate from an inspection station that there was an approved MSD on the boat. This would occur as part of the boat registration/license program. The inspection station options were boat dealerships, repair shops, marinas or county health departments. Licensing of the inspection station and identifying Bay Area approved MSD would be handled by the State Health Department through the county health departments. Authority to regulate MSD would be delegated by the U.S. Coast Guard. Analysis of the legality of such a program indicated that the State would be pre-empted from undertaking such a program because the statutory authority to regulate tests with the Federal government (U.S. Coast Guard). Further analysis of the institutional complexities of such an approach also influenced the decision not to pursue that alternative. Instead, a public education program by the

Regional Water Quality Control Board and U.S. Coast Guard is recommended as an effective way to inform the boating public about required devices and the importance of controlling vessel discharges.

Action 10.4 and 10.5. Support current requirements for marinas and harbors.

Alternatives to Policy 11

The major alternative considered for Policy 11 (Improve wastewater disposal practices in unsewered areas) was that of no action or continuing the status quo. Because problems associated with failing septic tanks occur throughout the Bay Area under the existing system, continuation of the status quo or no action was not felt to be feasible if the problem is to be alleviated.

An alternative to Action 11.1 (Establish minimum regionwide standards for on-site disposal systems) would have been to recommend that the Regional Water Quality Control Board set standards and impose those standards on the county health departments. The county health departments currently permit on-site disposal systems. The problem appeared to rest with lack of uniform standards and application of standards. A cooperative approach to standard setting appeared to be the more effective alternative.

No action did not appear to be a feasible alternative to Action 11.2 (Inspect periodically new on-site wastewater disposal systems, including septic tanks, and establish procedures to ensure proper maintenance). Historically many system failures have been linked to poor maintenance, due to the discretion allowed homeowners and their lack of information about the consequences of poor maintenance. A public oversight role appeared to be an appropriate solution. An alternative would have been to recommend the creation of a new agency to implement public management of new on-site systems. Based on the EMTF approach not to recommend the creation of new agencies where current implementing authorities exist and can reasonably be assumed able to carry out the recommended action, that alternative was rejected.

The same reasoning applies to the recommended implementing agencies for Action 11.3 (Establish procedure for inspection and maintenance of existing on-site systems where appropriate). Another alternative for that action would have been to require public management of existing on-site systems. Since failures are not always the result of poor maintenance (but may instead be due to improper soil conditions, etc.), requiring public management may be inappropriate in many areas as it would not solve those problems. Instead a procedure to inspect and maintain systems where that is appropriate to current problems is recommended. Requiring public management of existing systems when the problem is that the systems are not technically appropriate would allow the health hazards of recurrent failures to continue instead of encouraging the area to plan for a central sewerage system as recommended in Action 11.4 (Where on-site systems are inappropriate, install sewerage system).

Alternatives to Policy 12

The alternative considered for Policy 12 (Monitor effectiveness of existing arrangements for preventing and dealing with oil and chemical spills in Bay Area) was no action or continuation of the status quo. Numerous agencies are currently involved in dealing with spills (Coast Guard, Department of Fish and Game, EPA, RWQCB, State and County Offices of Emergency Services, Fire Department and local contractors). Testimony on the Draft EMP indicated that petroleum spills in bay and offshore waters are currently adequately handled by existing arrangements. Non-petroleum hazardous chemical spills merit study and a task force to do so is recommended. Effectiveness of inland hazardous/toxic chemicals spill prevention and clean-up arrangements will be developed. These aspects of spill prevention and clean-up merit attention so that some action was indicated.

Regulation of the construction and operation of vessels, facilities and safety device installation and increased liability limits would effectively reduce the risk of accidental oil and chemical spills. Such actions would provide incentives to shippers and facility owners to install effective safety devices and provide operator training to counter spills resulting from operator error. These actions appeared more feasible than the status quo or the risk of spills. Federal law preempts State or regional vessel construction and operation regulations and thus the recommendation (Action 12.6) supports Federal efforts.

No action did not appear feasible with regard to the current shipping traffic situation in North San Pablo Bay and Carquinez Straits. Shipping traffic in those areas is substantial. The risk of accidents remains due to the lack of a traffic system. Investigation of extending the comprehensive Central Bay radar traffic system seems advisable.

No action with regard to Action 12.8 (Containment of non-hazardous chemical spills) is judged infeasible. Non-hazardous chemical spills which enter into streams and other surface waters can cause significant water quality degradation and damage to wildlife and their habitats. Commercial production and traffic in materials that could cause these problems is significant and varied, thus making control of each source and accident reduction difficult.

The alternative to Action 12.9 (Prepare and implement a regionally-coordinated chemical spill response plan) would be a recommendation for each local agency or several agencies within a county to prepare a chemical spill response plan. This would result not only in multiple duplications of effort, but could produce dissimilar or conflicting methods for handling spills between agencies. Although one agency could effectively contain spills, damage could occur in a neighboring jurisdiction where the same type of spill would be washed into a storm drain or water body and cause environmental problems.

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The recommendations of the Water Quality Management Plan are an attempt to initiate a program of actions to be taken by all levels of government and the private sector that would result in the maintenance and enhancement of long-term productivity of the region's water resources. In some cases, for example, the municipal, industrial and certain of the miscellaneous source management actions would result in the short-term use of available materials to achieve long-term productivity. Taking action now will promote the long-term maintenance and enhancement of the beneficial use potential of the region's streams, lakes, reservoirs and the bay (e.g., water contact and non-contact recreation, fishing, shellfishing, etc.). This may only postpone the time when even more stringent pollution control programs to protect the region's water resources will be required. On the other hand, actions taken now may negate or substantially reduce further actions at some point in the future.

ANY SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

Policies which would ultimately result in construction (Action 5.1, Action 9.1 and 9.3, Action 10.4, 10.5, Action 11.4) of treatment facilities would require material and land resources. The land where the facilities will be sited may undergo irreversible environmental changes. The specific sites where that will occur and the exact nature of the irreversible environmental change from construction of the project and due to any growth accommodated by the project will be identified during the planning and assessment for the specific project.

THE GROWTH INDUCING IMPACTS OF THE PROPOSED ACTIONS

The recommendations in the plan most susceptible to scrutiny for their growth inducing potential are the municipal facilities policy (Policy 5) and actions and the on-site disposal system management policy (Policy 11) and actions. Comments received on the October [1977] draft of the Water Quality Management Plan raised concerns that any recommendation for public management of new on-site disposal systems would be construed as a growth inducing action and would adversely affect local government efforts to control growth on lands outside urban service areas.

As a result of those comments, the policy was modified. It was further modified to reflect deletion of land use controls. The new policy, Policy 11, reads "Improve Wastewater Disposal Practices in Unsewered Areas." The actions recommended to carry out that policy seek to do several things. First, uniform standards and criteria would be developed. That would ensure that new on-site disposal systems (especially septic tanks) would only be permitted where it could be demonstrated that they are technically feasible and could be presumed to

function effectively, with proper maintenance, without degradation of the ground or surface water. Use of uniform standards, criteria and tests by each county health department would eliminate the current situation where, because of different criteria, permits may be issued in one county under circumstances that would result in denial in another county. Assuming that new, uniform standards and criteria would be more stringent than many current ones, rather than inducing development policies. Inspection and maintenance requirements for new on-site disposal systems merely ensures that if on-site systems are permitted because they are technically appropriate, and are consistent with local development policies, they would not fail due to lack of proper maintenance. It is therefore felt that Policy 11 should not have growth inducing effects.

Policy 5 (Provide facilities needed for municipal sewerage services and water quality protection) and the actions to carry out the policy as embodied on the 20-Year Project List (~~Appendix J of Chapter III of Volume I of the EMP~~) [**(Revised 11/79 by General Assembly Resolution 5-79)**] are also subject to scrutiny for their growth inducing effects. The projects on the list that involve expansion of existing treatment facilities are those facilities necessary to serve a Bay Area population of 6.1 million people in the year 2000. ~~Because of the uncertainties about future population levels, projections of future waste loads were also calculated based on the low population projection of 5.4 million people in the year 2000. The projects on the list that would have their timing affected are noted with two asterisks.~~ The projects on the 20-Year Project List reflect expansions, additions and new facilities currently determined to be necessary over the next twenty-two years to accommodate the anticipated growth in the region. The Series 3 population projections [**The year 2000 population number from Projections 79: 1980-2000" by ABAG**] will be used by Federal and State grant authorities to fund facilities construction. If the region grows as projected, its sewerage needs should be provided for in an orderly fashion without any artificial constraints on or inducements to growth. Each project on the list will be subject to Federal and State grant regulations and NEPA and CEQA requirements (including a discussion of the project's growth inducing potential) prior to funding consideration.

As discussed in the section "Significant Environmental Effects which Cannot be Avoided if the Proposal is Implemented," the collection sewer systems included in the 20-year project list must be assessed for their growth inducing potential. At this point it is possible that certain of those systems could induce growth (although the ultimate limiting factor is the capacity of the treatment plant at the end of the pipe--a capacity selected to correspond to projected population). However, during the initial phases of the continuing environmental management planning process, those projects will be re-evaluated. In revising the 20-year project list (an annual activity required by Section 208 of the Federal Water Pollution Control Act Amendments), those projects found not to be consistent with the EMP would be deleted from the list. Moreover, prior to construction with Federal and State grant assistance, those projects judged eligible will have to meet Federal and State regulations and NEPA and CEQA requirements (including a discussion of the project's growth inducing potential).

VI. SCHEDULE FOR PUBLIC REVIEW OF THE PLAN RECOMMENDATIONS

Since the fall of 1979, the Bay Area Citizens Advisory Committee on Water Quality and ABAG's Water Quality Technical Advisory Committee have been reviewing the technical research upon which the recommendations are based and have been advising the water quality staff on the draft reports. In March, the Regional Planning Committee received a presentation on research to date and an outline of proposed plan recommendations. In April, the Executive Board was given a briefing on key water quality issues in preparation for its hearings and eventual action on the matter.

All concerned persons, agencies and organizations will be given copies of the draft documents for the plan amendments, environmental impact report, and manual of specifications for surface runoff control measures. The technical advisory committee will discuss the drafts on May 14, June 18 and July 16.

The public is invited to attend meetings of the citizens advisory committee as it discusses the drafts on May 8, June 12 and July 10, at 1 p.m. The committee will report its recommendations to the Regional Planning Committee, which will hold public discussions at its 1:30 p.m. meetings May 7 and June 4. The RPC will vote on the matter on July 2, passing its recommendations on to the Executive Board.

Public hearings on the documents will be held by the ABAG Work Program and Coordination Committee at 7:30 p.m. May 15 and by the Executive Board at 7:30 p.m. June 19 and July 17. The Board is scheduled to take action on July 17.

All the above meetings will be held at the Hotel Claremont.

Written recommendations will be welcomed by the Citizens Advisory Committee on Water Quality, Regional Planning Committee, and Executive Board. All interested persons will be able to testify, but those needing an early place on the agenda should contact the ABAG public affairs office in advance of each meeting.

Slide presentations and brochures on water quality problems and specifically on surface runoff and soil erosion will be available by mid-June through the public affairs office.

The meeting and hearing schedule is summarized in Table VI-1.

TABLE VI-1. PLAN REVIEW AND ADOPTION SCHEDULE^a

1. Briefing to Executive Board on water quality issues	April 17	7:30 p.m.
2. Public release of Draft WQ Plan Amendments/DEIR	April 30	
3. Public release of Manual of Specifications for Surface Runoff Control Measures (review draft)	May 14	
4. Bay Area Citizens Advisory Committee on Water Quality meetings	April 24	1:00 p.m.
	May 8	
	June 12	
	July 10	
5. Technical Advisory Committee meetings	April 16	9:30 a.m.
	May 14	
	June 18	
	July 16	
6. Public discussion at:		
Regional Planning Committee	May 7	1:30 p.m.
Regional Planning Committee	June 4	
7. Public hearings at:		
Work Program Coordination Committee	May 15	7:30 p.m.
Executive Board	June 19	7:30 p.m.
Executive Board	July 17	7:30 p.m.
8. Regional Planning Committee action	July 2	1:30 p.m.
9. Executive Board action	July 17	7:30 p.m.

^aAll meetings after May 1 will be held at ABAG.

APPENDIX A

MANUAL OF SPECIFICATIONS FOR SURFACE RUNOFF CONTROL MEASURES

This document will be distributed for public review on 14 May 1980.

APPENDIX B

RURAL AND URBAN FRINGE WATERSHED PROBLEM AREAS

TABLE A. RURAL WATER QUALITY PROBLEM SUMMARY

RESOURCE CONSERVATION DISTRICT	PROBLEM CATEGORY	LOCATION	PROBLEM DESCRIPTION	AREA AFFECTED # ACRES	# LAND- OWNERS	PRIORITY
Alameda County	● Cropland erosion	● North Livermore/Collier Area and isolated cases District-wide	● Soil erosion due to dryland farming on steep slopes.	17,500	46	High
	● Construction site erosion	● County Ridglands	● Soil erosion due to road and housing construction activities in hillside areas.	3,000	7,000	High
	● Ranchette erosion	● District-wide, mainly in rural areas of Hayward	● Soil erosion due to construction of roads, housing pads, and overstocking of grazing animals in confined areas.	3,700	245	High
	● Rangeland erosion	● Mainly in eastern Alameda County	● Isolated cases of mismanagement of rangelands, resulting in soil loss due to overstocking of animals, improper distribution, overgrazing, etc.	58,000	90	Mod.
	● Soil salinity	● Coastal Plains near Union City ● Northeast County east of Bethany Reservoir	● Potential salt accumulation due to lower quality of irrigation water and lack of subsurface drainage facilities	5,000	--	Low
Contra Costa County	● Soil erosion from subdivision and ranchette development	● Foothills east of San Ramon and south of Black Hills ● Lime Ridge foothills east of Concord ● Clayton Valley near Clayton ● Foothills near Moraga ● Foothills south and east of Antioch	● SCS considers soil erosion from subdivision and rural residential construction the most serious water quality problem in the County.	4,000	24	High

TABLE A. RURAL WATER QUALITY PROBLEM SUMMARY (Con't.)

RESOURCE CONSERVATION DISTRICT	PROBLEM CATEGORY	LOCATION	PROBLEM DESCRIPTION	AREA AFFECTED # ACRES	# LAND OWNERS	PRIORITY
B-2 Contra Costa County con't)	● Wind erosion	● Antioch, Oakley and Sand Hill areas	● Wind erosion due to combination of natural soil conditions, agri- cultural activities and surface mining.	700	7	High
	● Soil salinity	● From Webb Tract south to Coney Island (east- ern county)	● Excessive salt build-up due to irrigation practices.	2,700	9	High
	● Peat fires and land subsidence	● Delta Peat Lands in east county	● Soft peat soils lead to subsi- dence - area also subject to fires during dry summer months and potential flood area.	15,000	80	Low
	● Localized flooding	● Balfour Unit, Marsh Kellogg Watershed	● Area prone to flooding during periods of prolonged or intense rainfall.	6,000	20	High
	● Heavy metal pollu- tion	● Mt. Diablo Mercury Mines	● Leachate from mine tailings and excavation has contaminated sec- tions of Marsh Creek.	114	1	High
Dixon	● Construction site erosion and sedi- mentation	● Periphery of the City of Dixon	● Erosion due to construction activities.	1,100	1	High
	● Wind erosion	● Croplands District- wide	● Erosion of croplands due to natu- ral soil conditions and agricul- tural activities	10,000	100	High
Loma Prieta	● Construction site erosion	● Morgan Hill and Gilroy ● San Martin and other unincorporated areas of the county	● Excessive soil erosion due to con- struction of roads, housing and other structures.	1,400	1,400	High

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RESOURCE CONSERVATION DISTRICT	PROBLEM CATEGORY	LOCATION	PROBLEM DESCRIPTION	AREA AFFECTED		PRIORITY
				# ACRES	# LAND-OWNERS	
Loma Prieta (con't)	● Ranchette erosion and other pollutants	● District-wide	● Soil erosion, nutrient and bacteriological impacts due to ranchette construction and mismanaged animal waste	5,000	300	High
	● Roadside erosion	● District-wide, but primarily in hill areas, east and west of Santa Clara Valley	● Considerable roadside erosion due to excessive grading and improper construction and maintenance.	--	--	High
Marin County	● Cropland erosion	● Pt. Reyes National Seashore	● Wind and water erosion of croplands due to dryland farming activities and naturally erodible soil conditions.	2,000	10	Mod.
		● Isolated cases District-wide				
	● Pasture erosion	● Walker Creek and Lagunitas Creek Watersheds, other isolated cases District-wide	● Gully and streambank erosion due to dairy operations and overgrazing by livestock.	45,000	60	High
	● Rural construction site erosion	● Nicasio and Lagunitas Creek watersheds	● Soil erosion due to construction activities in areas of steep slope, and erodible soils.	2,600	undetermined	Low
Napa County	● Woodland erosion	● District-wide	● Natural soil erosion.	12,000	200	Mod.
	● Hillside vineyard erosion	● Western Napa Valley, from Calistoga to south County	● Isolated cases of severe erosion and sedimentation due to expansion of vineyards onto steep terrain.	2,800	100	High
		● Pope Valley				
		● Chiles Valley				

TABLE A. RURAL WATER QUALITY PROBLEM SUMMARY (Con't.)

RESOURCE CONSERVATION DISTRICT	PROBLEM CATEGORY	LOCATION	PROBLEM DESCRIPTION	AREA AFFECTED # ACRES	# LAND- OWNERS	PRIORITY
Napa County (con't)	● Streambank erosion	● Napa River and its tributaries	● Streambank erosion, siltation and high turbidity particularly during the rainy season.	5,000	200	High
	● Urban and rural con- struction site ero- sion	● Cities of Napa, St. Helena; Angwin and American Canyons; ranchette develop- ment in Southern Lake Berryessa.	● Erosion due to road and housing construction activities	10,000	200	Mod.
	● Rangeland erosion	● Western foothills of Napa County	● Erosion due to overgrazing, ex- cessive livestock trailing, etc.	100,000	100	Mod.
Petaluma	● Cropland erosion	● Northeastern District near Petaluma ● Western District near Marin Co. RCD border	● Soil erosion due to cultivation of dryland crops (hay) on steep slopes.	2,000	5	High
	● Pasture erosion	● District-wide	● Pasture and gully erosion due to dairy and livestock operations.	8,000	15	High
	● Construction site erosion	● City of Petaluma ● Isolated cases of ran- chette erosion	● Erosion due to construction of roads, housing pads, and over- grazing of corral areas.	1,250	150	Mod.
	● Woodland erosion	● La Honda area ● Pescadero area ● Southern District (Santa Cruz Mountains)	● Erosion of woodland areas due to natural soil conditions and roads.	5,000	6	High

TABLE A. RURAL WATER QUALITY PROBLEM SUMMARY (Con't.)

RESOURCE CONSERVATION DISTRICT	PROBLEM CATEGORY	LOCATION	PROBLEM DESCRIPTION	AREA AFFECTED		PRIORITY
				# ACRES	# OF LAND- OWNERS	
B-5 San Mateo County (con't)	● Slope slippage	● Santa Cruz Mountains from Highway 92 to La Honda area	● Isolated cases of slope slippage due to natural soil conditions.	50	30	Low
	● Gully and sheet erosion	● Moss Beach ● Half Moon Bay ● San Gregorio ● Pescadero ● Ano Nuevo	● Erosion due to cropland and pas- ture due to natural conditions and unsuitable management prac- tices.	5,000	50	High
	● Other erosion (e.g. streambank erosion)	● Lake Lucerne Watershed ● Pilarcitos Creek ● Arroyo de los Frijoles	● Natural streambank erosion.	3,500	20	Mod.
Sonoma Valley	● Hillside vineyard erosion	● Sonoma Valley from Kenwood to City of Schellville	● Scattered cases of vineyard ero- sion due to cultivation on steep slopes.	2,850	45	High
	● Cropland erosion	● Eastern and western foothills of Sonoma Valley	● Soil erosion due to cultivation of dryland crops (hay) on steep slopes.	1,200	3	High
	● Pastureland erosion, nutrient and bacter- iological impacts	● Foothills around Sonoma and Schellville	● Erosion, nutrient and bacterio- logical impacts due to dairy and livestock operations.	8,000	50	High
	● Construction site erosion	● Sonoma Area, scattered rural residential areas District-wide	● Erosion due to construction of roads, housing pads, and over- grazing of corral areas.	4,500	500	Mod.

TABLE A. RURAL WATER QUALITY PROBLEM SUMMARY (Con't.)

RESOURCE CONSERVATION DISTRICT	PROBLEM CATEGORY	LOCATION	PROBLEM DESCRIPTION	AREA AFFECTED # ACRES	# LAND- OWNERS	PRIORITY
Sotoyome-Santa Rosa	● Construction site erosion	● City of Santa Rosa ● Stony Point Road ● Southeast District be- tween Bennett Valley Road and Annadel Stat Park	● Erosion due to construction of roads, housing. Problem is po- tentially serious around City of Santa Rosa.	--	--	High
	● Pasture erosion	● Pasture areas near Laguna de Santa Rosa ● South Santa Rosa to Glen Ellen including Matanzas Creek ● North Rohnert Park to Cotati	● Pasture erosion due to dairy opera- tions.	20,000	10	High
	● Vineyard erosion	● Northern Sonoma County vineyards in Russian River watershed	● Vineyard erosion due to cultivation on steep slopes and expansion of new vineyards on unsuitable site (e.g. landslide areas, areas of poor drainage).	9,000	--	High
	● Woodland erosion	● Areas west of Clover- dale ● North western district including the Gualala River, Russian Gulch & Austin Creek Watersheds	● Soil erosion due to road construc- tion, logging operations, fires, and natural soil conditions.	11,500	95	Low
	● Rangeland erosion	● Warm Springs Creek Watershed ● Squaw Creek and Big Sulphur Creek Water- shed east of Clover- dale	● Isolated cases of rangeland ero- sion due to improper management practices.	92,000	--	Mod.

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RESOURCE CONSERVATION DISTRICT	PROBLEM CATEGORY	LOCATION	PROBLEM DESCRIPTION	AREA AFFECTED # ACRES	# LAND- OWNERS	PRIORITY
Sotoyome-Santa Rosa (con't)	● Rangeland erosion (con't)	● Areas near Laguna de Santa Rosa	(see previous page)			
	● Erosion due to Geo- thermal Exploration	● Northeast Sonoma County	● Potential erosion due to construc- tion of roads, drilling pads, etc.	25,000	2	Low
Suisun	● Construction site erosion	● City of Fairfield ● Suisun City ● Cordelia and adjacent area	● Erosion due to construction of roads, housing, etc.	500	3 (cities themselves)	High
	● Wind erosion	● Potrero & Montezuma Hills ● Peatlands in South District	● Wind erosion of dry farmed crop- lands and peatlands.	1,000	undeter- mined	High
Ulatiss	● Construction site erosion and sedi- mentation	● City of Vacaville ● Pleasant Valley ● English Hills ● Allendale	● Erosion and sedimentation due to land leveling operations and grading for housing pads and ac- cess roads.	10,000	750	High
	● Other water and wind erosion	● Isolated areas District-wide	● Wind and water erosion of crop- lands, streambank erosion.	70,000	250	High

TABLE A. RURAL WATER QUALITY PROBLEM SUMMARY (Con't)

RESOURCE CONSERVATION DISTRICT	PROBLEM CATEGORY	LOCATION	PROBLEM DESCRIPTION	AREA AFFECTED		PRIORITY
				# ACRES	# LAND OWNERS	
Evergreen	● Construction site erosion	● Calabazas Creek Watershed	● Soil erosion due to construction of roads and housing developments in areas of steep slopes or generally unstable soil conditions (e.g. Santa Clara Formation)	3,825	315	High
		● Montebello Ridge				
		● Stevens Creek Canyon				
		● Cupertino and Saratoga areas				
		● Chemaketa Park				
		● Redwood Estates				
		● Aldercroft Heights				
		● Soda Springs, Bollinger and Summit Roads				
		● Almaden area including Kennedy Road				
		● Alum Rock Park				
	● Ranchette erosion	● Concentrated animal ranchettes are located throughout the periphery of Santa Clara Valley	● Soil erosion due to road and housing construction and over-stocking of grazing animals in confined areas. Other impacts include nutrient and bacteriological pollution due to animal waste	300	200	High
	● Soil erosion from off road Motorcycle Park	● Metcalf Road	● Severe soil erosion due to heavy use of motorcycles in hill areas	500	2	High
	● Natural landslide areas, rangeland erosion	● Northeast of Anderson Reservoir	● Soil erosion due to landslide and improper range management	1,500	1	High

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RESOURCE CONSERVATION DISTRICT	PROBLEM CATEGORY	LOCATION	PROBLEM DESCRIPTION	AREA AFFECTED # ACRES	# LAND- OWNERS	PRIORITY
Evergreen (Con't)	● Rangeland erosion	● Rangelands east of Calaveras Reservoir	● Isolated cases of soil erosion due to improper range management. Potentially critical area if improperly cleared or burned	1,200	2	Mod.
		● Beauregard Rd. area				
	● Trace metal pollution and soil erosion	● Abandoned Magnesite Mines	● Potential problem area due to Peachate from mine tailings and excavation	200	2	Mod.
		● District-wide	● Soil erosion due to improper range management			
	● Trace metal pollution	● Abandoned mercury mines in the Almaden area, including areas near Kennedy Rd. and Almaden Reservoir	● Excessive concentrations of mercury detected in the bottom sediments of Alameden, Calevo, and Guadalupe Reservoirs and tributary streams.	200	1	Mod.

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